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FROM A WIND TUNNEL TEST OF A FULL-SCALE,
COAXIAL, HINGELESS ROTOR HELICOPTER (NASA)
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Fort F. Felker III

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NASA
National Aeronautics and
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SUMMARY

A test of a full-scale XH-59A Advancing Blade Concept Helicopter was conducted in Ames Research Center's 40- by 80-Foot Wind Tunnel. The helicopter was tested with the rotor on and off, rotor hub fairings on and off, inter-rotor shaft fairing on and off, rotor instrumentation module on and off, and auxiliary propulsion thrust on and off. The investigation was accomplished over an advance ratio range of 0.25 to 0.45 with the rotor on and from 60 to 180 knots with the rotor off. This report presents data on aerodynamic forces and moments, rotor loads, rotor control positions and vibration for the XH-59A as well as the aerodynamic performance of the isolated rotor.

List of Symbols

a	speed of sound, ft/sec
A ₁	longitudinal cyclic blade pitch, deg
b	total number of rotor blades
B ₁	lateral cyclic blade pitch, deg
c _{.75}	blade chord at 75% radius, ft
C _{DR} /σ	rotor drag coefficient, rotor drag/ρS(ΩR) ²
C _{LR} /σ	rotor lift coefficient, rotor lift/ρS(ΩR) ²
C _{MX} /σ	rotor rolling moment coefficient, rotor rolling moment/ρS(ΩR) ² R
C _{MY} /σ	rotor pitching moment coefficient, rotor pitching moment/ρS(ΩR) ² R
C _{MZ} /σ	rotor yawing moment coefficient, rotor yawing moment/ρS(ΩR) ² R
C _p /σ	rotor power coefficient, total turboshaft engine power/ρS(ΩR) ³
C _{po} /σ	rotor nonideal power coefficient
C _{YR} /σ	rotor side force coefficient, rotor side force/ρS(ΩR) ²
D	drag, lb
L	lift, lb
Σ	rolling moment, ft-lb
M	pitching moment, ft-lb
M _{at}	advancing tip Mach number, M _{at} = M _{tun} + M _{tip}
M _{tip}	rotor tip rotational Mach number, ΩR/a
M _{tun}	free stream Mach number, M _{tun} = V/a
N	yawing moment, ft-lb
q	free stream dynamic pressure, ρV ² /2, lb/ft ²

List of Symbols (continued)

r	local blade radius, ft
R	rotor radius, ft
S	rotor reference area, $S = bc.75R$
V	free stream velocity, ft/sec
Y	side force, lb
α	angle of attack, deg
α_s	shaft angle of attack, deg
μ	rotor advance ratio, $V/\Omega R$
Ω	rotor rotational speed, rad/sec
ψ	blade azimuth, deg, counter-clockwise is positive as viewed from above, zero with instrumented blade pointing aft
ρ	air density, slugs/ft ³
σ	rotor solidity, $\sigma = bc.75/\pi R$
θ	rotor blade pitch, deg

Subscripts

u	upper rotor
l	lower rotor
$()'$	prime, differential between upper and lower rotors

INTRODUCTION

The high-speed capability of modern helicopters can be limited by the rapid increase in rotor power requirements that accompanies retreating blade stall and advancing blade compressibility drag. In order to reduce the compressibility drag the rotor's rotational speed must be reduced, but this only aggravates the problem of retreating blade stall.

One solution to this dilemma is to use two counter-rotating rotors with each lifting predominantly on its advancing side. Since the retreating side of each rotor is unloaded, blade stall is less of a problem and the rotor's rotational speed can be reduced, which helps alleviate compressibility drag as well. Two XH-59A Demonstration/Research Helicopters were built by Sikorsky Aircraft under Army Sponsorship using this Advancing Blade Concept (ABC). A three-view drawing of the helicopter as modified for wind tunnel testing is presented as figure 1. Readers who desire additional information on the ABC concept are referred to references 1-6.

One disadvantage of this configuration is the large parasite drag of the rotor hubs and inter-rotor shaft. The hub drag is proportional to the hub's swept frontal area (reference 7) and the ABC, with two hubs instead of one, has twice the hub swept frontal area of a conventional helicopter of similar (hingeless) construction. In addition to this is the drag due to the inter-rotor shaft. In an effort to reduce the hub's parasite drag a 1/5-scale model wind tunnel test was conducted to identify the drag reduction potential of fairing the rotor hubs and inter-rotor shaft of the XH-59A (reference 8). Many fairing configurations were tested and one was selected for full-scale wind tunnel testing.

This report presents the results of a full-scale wind tunnel-test-of an XH-59A helicopter conducted in Ames Research Center's 40- by 80-Foot Wind Tunnel. The objectives of the test were to (1) provide advanced technology data necessary for assessment of a potentially viable mission-oriented ABC vehicle, including hub drag reduction and rotor/tail/propulsion system interference alleviation, and (2) provide data with which to interpret, clarify, and augment flight test results as well as provide a base for correlation of existing 1/5-scale model test data. The test was conducted over an advance ratio range of 0.25 to 0.45 with the rotor on and from 60 to 180 knots with the rotor off. Data is presented for aerodynamic forces and moments, rotor control positions, rotor structural loads, and vibration of the XH-59A as well as the aerodynamic performance of the isolated rotor.

EXPERIMENTAL EQUIPMENT AND PROCEDURES

Description of Wind Tunnel and Balance

The 40- by 80-Foot Wind Tunnel is of the closed-throat, single-return type with a speed capability extending to 180 knots. Model forces and moments were measured by a six-component mechan. balance. Balance sensitivities were as follows:

Scale	Sensitivity
Lift*, lb	5
Drag, lb	1
Side Force*, lb	1
Pitching Moment, ft-lb	160
Rolling Moment, ft-lb	85
Yawing Moment, ft-lb	24

*two balances used to measure total force

Description of Model

General -- Several photographs of the ABC installed in the wind tunnel test section are presented as figure 2. Note the fairings installed over the rotor hubs and inter-rotor shaft in figures 2(a) and 2(b). The helicopter was modified by the addition of two struts and fairings in place of the main landing gear so that it could be mounted on the wind tunnel's strut model support system. Figure 2(f) presents a close-up view of the model support struts. The helicopter's pitch attitude (rotor shaft angle of attack) was remotely controlled using an extendable nose strut. The three struts which support the model on the wind tunnel balance were faired to minimize the extraneous airloads applied to the balance. The midpoint between the two rotors was 5 feet above the tunnel centerline. Power for the rotors was supplied by two PT6T-3 turbo-shaft engines producing a total of 1500 HP. The nacelle-mounted engines for auxiliary propulsion were J60-P3A turbojets which produce 3000 lbs. of thrust each. General specifications of the XH-59A are presented in Table 1.

Six rotor controls were remotely operated from the control room by electro-mechanical actuators. The six rotor controls were collective, lateral cyclic, and longitudinal cyclic for each rotor. The relationships between these controls and the rotor blade pitch were as follows:

Collective:

$$\theta_0 = \frac{\theta_{0u} + \theta_{0l}}{2}$$

Longitudinal Cyclic:

$$A_1 = \frac{A_{1u} + A_{1l}}{2}$$

Lateral Cyclic:

$$B_1 = \frac{B_{1u} + B_{1l}}{2}$$

Differential Collective:

$$\theta_0' = \frac{\theta_{0u} - \theta_{0l}}{2}$$

Differential Longitudinal Cyclic:

$$A_1' = \frac{A_{1u} - A_{1l}}{2}$$

Differential Lateral Cyclic:

$$B_1' = \frac{B_{1u} - B_{1l}}{2}$$

Therefore the blade pitch on the upper rotor was:

$$\theta_u = (\theta_0 + \theta_0') - (A_1 + A_1') \cos \psi_u - (B_1 + B_1') \sin \psi_u$$

blade pitch on the lower rotor was:

$$\theta_l = (\theta_0 - \theta_0') - (A_1 - A_1') \cos \psi_l - (B_1 - B_1') \sin \psi_l$$

Rotor Blades - The XH-59A used three 18-foot radius rotor blades on each rotor. The upper rotor rotated in the counter-clockwise direction, and the lower rotor rotated in the clockwise direction. The upper and lower rotors were indexed such that when the instrumented blade of the upper rotor was at $\psi = 0^\circ$, the instrumented blade of the lower rotor was at $\psi = 300^\circ$. The rotor blades were attached to the hubs without flap or lead-lag hinges, using only pitch bearings. The blades were attached with 3° of precone and 1.4° of prelag. The blades were tapered in both planform and thickness. The planform taper was linear with a rotor chord to tip chord ratio of 2:1. A drawing of the blade in plan view is presented as figure 3. The spanwise variation of blade thickness to chord ratio is presented as figure 4. The airfoil contour at 20% radius was a NACA 63(230)224A airfoil tapering in thickness to a NACA 63(230)-213A airfoil at 62% radius. This transitioned to a NACA 23012(64) airfoil at 72% radius which was held constant to the tip (fig. 3). The blades had -10° of nonlinear twist. The twist distribution is presented as figure 5. The

primary structural element in the blades was a full span titanium spar with boron composite reinforcement bonded to the upper and lower surfaces of the spar to increase the flapwise stiffness. A honeycomb core covered with a fiberglass skin was attached to the spar to give the blades their aerodynamic shape. Figure 6 presents a drawing of a typical blade section. The blade's natural frequency diagram is presented as figure 7. The spanwise distribution of rotor blade properties are given in Table 2.

Description of Hub Fairings

Figure 8 presents a sketch of the rotor hub fairings that were tested. The upper and lower rotor hub fairings were 31.8% thick ellipsoids. These fairings had a diameter of 4.17 feet. The inter-rotor shaft fairing was a 43% thick NACA 4-digit series symmetric airfoil. The inter-rotor shaft fairing was mounted to the upper and lower rotor hubs with bearings and was free to rotate about the rotor centerline. It was expected that the fairing would, therefore, rotate to a trailing edge aft orientation, aligned with the free stream. However, it was noted during the wind tunnel test that the fairing did not align itself with the wind and was skewed about 30° relative to the free stream either to the left or to the right. This failure to align itself was evident when testing both with the hubs rotating and the hubs not rotating when testing with the rotor blades off. The skew also continued when testing with the rotor blades on. In an effort to eliminate the skew of the inter-rotor shaft fairing, an extended trailing edge tab was attached to the fairing (see fig. 8). However, the skew continued in spite of the extended trailing edge tab.

An aerodynamic configuration which is free to pivot about a point aft of its aerodynamic center is inherently unstable about its pivot. The pivot of the inter-rotor shaft fairing was at the 30% chord location. It is to be

expected that the inter-rotor shaft fairing would not line up with the wind if its aerodynamic center is forward of 30% of chord. It was reported in reference 9 that a NACA 0035 airfoil had an aerodynamic center located 16% of chord aft of the leading edge. Although the inter-rotor shaft fairing's airfoil section was a slightly thicker NACA 0043, ref. 9 indicates that the trend is for the aerodynamic center to move forward with increasing thickness. Thus, the available evidence indicates that the aerodynamic center of the inter-rotor shaft fairing was at least as far forward as 16% of chord aft of the leading edge. The failure of the inter-rotor shaft fairing to properly align itself with the free stream was, therefore, a result of the aerodynamic center being forward of the pivot point. The extended trailing edge tab had little effect on the orientation of the inter-rotor shaft fairing. The reason was that the trailing edge tab was not long enough to move the aerodynamic center aft of the pivot point.

Figure 9 presents a sketch of the unfaired rotor hub with the rotor blades off and also shows the instrumentation can. The instrumentation can housed signal conditioning equipment and slip rings used for acquiring data in the rotating frame of reference.

Instrumentation and Data Reduction

Wind tunnel wall corrections have been applied to the forces and moments measured by the wind tunnel balance. This wall correction is based on conventional fixed wing techniques, for a wing of span equal to the rotor diameter (reference 10). The wall correction was an incremental change in the angle of

attack that was proportional to the lift:

$$\Delta\alpha = 0.00235 \frac{L}{q}$$

where the constant, 0.00235 deg/ft², was determined based on rotor and wind tunnel geometric parameters. This incremental angle, $\Delta\alpha$, was added to the geometric angle of attack, α_g , to obtain the corrected rotor disk angle of attack in free air, α .

$$\alpha = \alpha_g + \Delta\alpha$$

Balance forces and moments were then resolved to this new wind-axis system.

Tare corrections were analytically determined to account for forces and moments produced by the exposed model support struts (references 11, 12). The exposed tips of the wind tunnel model support system struts were estimated to have a total parasite drag area of 3.35 ft². The fairings around the model's support struts (extending from the tips of the wind tunnel model support system struts to the ABC's main landing gear wheel wells, see fig. 2(f)) were modelled as low aspect ratio wings (AR = 1.26). An explanation of the equations used to correct the measured forces and moments for the effects of the strut fairings is presented in Appendix I. The forces and moments produced by the J60 auxiliary propulsion engines have also been subtracted out of the data presented here. The thrust was calculated from a thrust versus exhaust pressure ratio calibration which was performed in an engine test cell before the wind tunnel test. An explanation of the equations used to correct for the thrust of the J60 engines is presented in Appendix II.

All aerodynamic forces and moments are presented in wind axes. The axis center for rotor forces and moments was on the centerline of the inter-rotor shaft halfway between the two rotors. In aircraft coordinates this position

would be:

Fuselage Station = 300

Water Line = 215

Butt Line = 0

All other aerodynamic forces and moments were resolved to the aircraft's center of gravity, whose location is shown on fig. 1. In aircraft coordinates, the center of gravity is located at:

Fuselage Station = 294.7

Water Line = 158

Butt Line = 0

Positive directions of forces and moments are shown in figure 10.

Engine torques were measured using pressure transducers plumbed to the engine torque pressure outputs. These torques were multiplied by the engine output shaft's rotational speed to obtain the power output. A nonideal power coefficient was computed as follows:

$$C_{p0}/\sigma = C_p/\sigma - \sigma(C_{LR}/\sigma)^2/2\mu + \mu C_{DR}/\sigma$$

The parameter C_{p0} is obtained by subtracting the propulsive or parasite power and the ideal induced power from C_p ; therefore, it is equal to the sum of the rotor profile power and nonideal induced power losses.

The aerodynamic forces and moments of the isolated rotor were obtained by subtracting the forces and moments due to the fuselage from the total measured.

The forces and moments due to the fuselage were determined from testing with the rotor blades off. This "tare" due to the fuselage was described by polynomial equations in α and q after the forces and moments due to the J60 engines had been removed. These equations are given in Table 3. These tares were obtained with the instrumentation can installed on the inter-rotor shaft, no hub fairings, and the hubs rotating. However, several rotor-on runs were conducted with the hub fairings installed in place of the instrumentation can. The fuselage tares obtained with the instrumentation can were also used to calculate the rotor forces for these runs. Therefore, the effect of substituting the hub fairings for the instrumentation can is included in the rotor forces and moments since the fuselage aerodynamic tares used to calculate the rotor forces and moments were obtained with the instrumentation can installed.

The instrumentation parameters considered in this report are listed in Table 4, including units and positive directions. The actual radial locations of the blade bending gages are given in Table 5 and are shown on a drawing of the rotor blade in fig. 3. The signals from the parameters listed in Table 4 were sampled and digitized 64 times per revolution. The time history was smoothed and filtered by eliminating subharmonics and harmonics above 10/rev; and a correction for the Bessel filters in the amplifiers was applied.

Due to various problems encountered during the wind tunnel test, the mean values of the blade pitch data (θ_0 and $\Delta\theta_0$) are not reliable from run to run. However, the increments of collective and differential collective pitch within a run are reliable.

OPERATING CONDITIONS

The ABC's performance and loads data were acquired over an advance ratio range of 0.25 to 0.45 with the rotor on and from 60 to 180 knots with the rotor off. For the rotor-on runs, the rotor speed was adjusted to give the desired tip Mach number, M_{tip} , and the tunnel speed was adjusted to obtain the desired advance ratio, μ . Data were then acquired for a matrix of shaft angles, α_s , and rotor lift coefficients, C_{LR}/σ . The operating conditions at which the data were acquired are shown in figure 11.

Several hub fairing configurations were tested, and runs were conducted both with the rotor blades on and with the rotor blades off. Table 6 presents a key to the configuration that was tested in each run. Rotor-on testing was conducted over an angle of attack range of 0° to 10° . Rotor-off testing was conducted over an angle of attack range of -10° to $+10^\circ$ and a yaw angle range of -15° to $+14^\circ$. The auxiliary propulsion engines were operated at flight idle for all runs except for run 10.

RESULTS

Performance Data

The performance data are tabulated in Section A. A dictionary of the parameters is provided in Table 7. The data are organized by run number.

Control and Loads Data

The control and loads data are tabulated in Section B. The oscillatory (one-half peak-to-peak) and mean loads, the blade pitch control settings, and the one-half peak-to-peak accelerations are presented. A dictionary of the parameters is presented in Table 8. The data are organized by run number.

Detailed Loads Data

Detailed loads data are given in Section C. The first 10 harmonics and the time history over one revolution are presented for the blade bending moments, pitch link loads, and upper rotor shaft stress. A dictionary of the parameters is provided in Tables 7 and 8. The pitch link load given in the detailed loads presentation is that of the red, instrumented blade. As previously noted, when the instrumented blade of the upper rotor was at $\psi = 0^\circ$, the instrumented blade of the lower rotor was at $\psi = 300^\circ$.

Plotted Data

Selected performance and loads data are plotted in Section D. A dictionary of the parameters is provided in Tables 7 and 8. Fuselage aerodynamic characteristics, rotor performance, rotor loads, and airframe vibration plots are presented. The data points are designated by circles on the plots. The majority of the plots present isograms for a particular quantity as a function of rotor lift and rotor drag, at a given advance ratio. The contours are interpolated from the values of the quantity at the data points. The parameter ϵ_y in the upper left-hand corner of the plots is the rms error of the estimate of the quantity at the data points based on the interpolated contours.

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TABLE 1. XH-59A GENERAL SPECIFICATIONS

Aircraft Length (rotor turning)	41.7	ft
Fuselage Length	40.8	ft
Rotor Radius, R	18.0	ft
Number of Rotors	2	
Blades per Rotor	3	
Rotor Separation	2.5	ft
Blade Tip Chord	0.938	ft
Blade Taper Ratio	2:1	
Blade Twist (nonlinear)	-10	deg
Total Rotor Solidity, σ	0.1267	
Rotor Reference Area, S	128.965	ft ²
Blade Precone Angle	3	deg
Blade Prelag Angle	1.4	deg
Shaft Tilt	0	deg
Design Rotor Tip Speed	650	ft/sec
Rotor Drive System Power	1500	HP
Tail Surface Area - Horizontal	60	ft ²
- Vertical	30	ft ²
Horizontal Tail Incidence	-5	deg
Power Plants - Lift	(2) PT6T-3	
- Thrust	(2) J60-P3A	

TABLE 2. SPANWISE DISTRIBUTION OF ROTOR BLADE PROPERTIES

r/R	<u>Weight, lb/ft</u>	r/R	<u>Flapwise Stiffness</u> $EI_f, \text{lb-ft}^2 \times 10^{-3}$	r/R	<u>Chordwise Stiffness</u> $EI_c, \text{lb-ft}^2 \times 10^{-3}$
0.	0.	0.	5,970	0.	5,970
0.030	116.40	0.092	5,790	0.092	5,970
0.092	116.40	0.144	3,330	0.115	4,380
0.092	26.40	0.202	1,940	0.173	3,190
0.115	21.60	0.259	1,361	0.288	2,290
0.173	16.80	0.345	875	0.403	1,750
0.288	11.40	0.403	667	0.518	1,472
0.403	8.16	0.518	361	0.691	1,000
0.576	5.04	0.634	194	0.864	556
0.737	3.36	0.748	111	1.0	389
0.737	5.04	1.0	56		
0.939	3.84				
0.939	12.24				
0.973	12.23				
0.973	14.88				
1.0	14.88				

TABLE 2. CONTINUED

r/R	Torsional Stiffness $GJ, \text{ lb-ft}^2 \times 10^{-3}$	r/R	Torsional Inertia, $I, \text{ lb-ft}^2/\text{ft}$
0.	4,785	0.	1.458
0.093	4,785	0.116	1.458
0.125	3,993	0.116	1.225
0.174	2,326	0.139	1.225
0.231	1,528	0.139	1.033
0.289	1,111	0.162	1.033
0.347	778	0.162	1.175
0.405	507	0.23	1.125
0.463	330	0.40	0.650
0.521	208	0.60	0.375
0.579	134	0.944	0.151
0.694	67	0.979	0.151
0.810	35	0.979	0.136
0.926	22	1.0	0.136
1.0	21		

TABLE 3. EQUATIONS FOR FUSELAGE AERODYNAMIC TARES

For $q < 50 \text{ lb/ft}^2$

$\begin{bmatrix} L/q \\ D/q \\ M/q \\ Y/q \\ N/q \\ \ell/q \end{bmatrix}$	$=$	$\begin{bmatrix} 10.76035 \\ 23.46913 \\ -130.64588 \\ -1.40292 \\ -2.68051 \\ 61.30223 \end{bmatrix}$	$\begin{bmatrix} 5.41970 \\ 0.03287 \\ -38.59377 \\ -0.08140 \\ 1.57295 \\ 0.06086 \end{bmatrix}$	$\begin{bmatrix} 0.00009 \\ 0.05235 \\ 0.26388 \\ -0.00874 \\ -0.03260 \\ -0.14750 \end{bmatrix}$	$\begin{bmatrix} 0.00095 \\ 0.00168 \\ -0.04500 \\ 0.00054 \\ -0.00470 \\ 0.00422 \end{bmatrix}$	$\begin{bmatrix} -0.59206 \\ -0.01789 \\ 4.74413 \\ 0.11532 \\ -0.38280 \\ -3.43062 \end{bmatrix}$	$\begin{bmatrix} 0.00638 \\ -0.00057 \\ -0.06653 \\ -0.00160 \\ 0.01217 \\ 0.05991 \end{bmatrix}$	$\begin{bmatrix} 1 \\ \alpha \\ \alpha^2 \\ \alpha^3 \\ q \\ q^2 \end{bmatrix}$
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For $q > 50 \text{ lb/ft}^2$

$\begin{bmatrix} L/q \\ D/q \\ M/q \\ Y/q \\ N/q \\ \ell/q \end{bmatrix}$	$=$	$\begin{bmatrix} -6.72088 \\ 21.57190 \\ -124.43791 \\ -0.64084 \\ -13.78191 \\ 47.21218 \end{bmatrix}$	$\begin{bmatrix} 5.17748 \\ 0.00113 \\ -42.96387 \\ -0.13112 \\ 1.00925 \\ -0.16395 \end{bmatrix}$	$\begin{bmatrix} 0.01511 \\ 0.05188 \\ -0.08872 \\ -0.00645 \\ 0.01682 \\ 0.04250 \end{bmatrix}$	$\begin{bmatrix} 0.00221 \\ -0.00166 \\ -0.00494 \\ 0.00075 \\ -0.00512 \\ 0.00356 \end{bmatrix}$	$\begin{bmatrix} 0.07984 \\ -0.00328 \\ 2.66738 \\ 0.03859 \\ 0.39236 \\ -1.11131 \end{bmatrix}$	$\begin{bmatrix} 0.00079 \\ -0.00005 \\ -0.01700 \\ -0.00030 \\ -0.00336 \\ 0.00714 \end{bmatrix}$	$\begin{bmatrix} 1 \\ \alpha \\ \alpha^2 \\ \alpha^3 \\ q \\ q^2 \end{bmatrix}$
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TABLE 4. LIST OF INSTRUMENTATION PARAMETERS

Parameter	Units	Positive Direction
Upper rotor chordwise bending moment, .1R	ft-lb	tip aft
Upper rotor normal bending moment, .1R	ft-lb	tip up
.2R	ft-lb	tip up
.3R	ft-lb	tip up
.6R	ft-lb	tip up
Upper rotor red blade pitch link load*	lb	tension, leading edge up
Upper rotor yellow blade pitch link load	lb	tension, leading edge up
Upper rotor blue blade pitch link load	lb	tension, leading edge up
Upper rotor shaft stress	lb/in ²	tension
Upper rotor blade root pitch	deg	leading edge up
Lower rotor chordwise bending moment, .1R	ft-lb	tip aft
Lower rotor normal bending moment, .1R	ft-lb	tip up
.2R	ft-lb	tip up
.3R	ft-lb	tip up
.6R	ft-lb	tip up
Lower rotor red blade pitch link load*	lb	tip up
Lower rotor yellow blade pitch link load	lb	tension, leading edge up
Lower rotor blue blade pitch link load	lb	tension, leading edge up
Lower rotor blade root pitch	deg	tension, leading edge up
#1 PT6 torque	ft-lb	leading edge up
#2 PT6 torque	ft-lb	power to rotor
Gearbox vertical acceleration	g's	power to rotor
Gearbox lateral acceleration	g's	
Gearbox longitudinal acceleration	g's	
Left vertical fin vertical acceleration	g's	
Horizontal stabilizer vertical acceleration	g's	
Left aft support strut lateral acceleration	g's	
#1 J60 vertical acceleration	g's	
#2 J60 vertical acceleration	g's	

*the red blade was the instrumented blade for both rotors.

TABLE 5. BLADE BENDING GAGE LOCATIONS

NOMINAL STATION	r/R
.1R	0.1026
.2R	0.1991
.3R	0.3009
.6R	0.6019

TABLE 6. CONFIGURATION KEY

RUNS	HUB FAIRING	INTER-ROTOR SHAFT FAIRING	INSTRUMENTATION CAN
Rotor Blades off			
10,12	on	on	off
13	on	off	off
15	off	off	off
17,18	off	off	on
Rotor Blades on			
21,23,24,25	off	off	on
28,29,30	on	on	off

TABLE 7. PERFORMANCE DATA PARAMETERS

LABEL	PARAMETER
ALFS,C	angle of attack in free air, α , deg
ALFS,U	shaft angle of attack, α_s , deg
ANXL/R	inclination of thrust vector from vertical, positive forward, deg
BAR	atmospheric barometric pressure, in Hg
CDR/S,R	rotor drag coefficient, C_{DR}/σ
CLR/S,R	rotor lift coefficient, C_{LP}/σ
CMX/S,R	rotor rolling moment coefficient, C_{MX}/σ
CMY/S,R	rotor pitching moment coefficient, C_{MY}/σ
CMZ/S,R	rotor yawing moment coefficient, C_{MZ}/σ
CP/S	rotor power coefficient, C_p/σ
CPO/S	rotor nonideal power coefficient, C_{p0}/σ
CYR/S,R	rotor side force coefficient, C_{YR}/σ
DRAG	aircraft drag, lb
DRAG/Q	aircraft drag/q, ft ²
DRAG,R	rotor drag, lb
E3	upper rotor hub fairing
E4	lower rotor hub fairing
IC	instrumentation can

TABLE 7. CONTINUED

LABEL	PARAMETER
HP	total power output of PT6 engines, horsepower
J THRUST	total thrust of J60 auxiliary propulsion engines, lb
L/DE	effective aircraft lift/drag, including equivalent drag of PT6 power. $L/DE = \text{lift}/(\text{drag} + (550 \times \text{HP}/V))$
L/D,R	effective rotor lift/drag, including equivalent drag of PT6 power. $L/D,R = \text{rotor lift}/(\text{rotor drag} + (550 \times \text{HP}/V))$
LIFT	aircraft lift, lb
LIFT/Q	aircraft lift/q, ft ²
LIFT,R	rotor lift, lb
MAT	advancing tip Mach number, M_{at}
MTUN	free stream Mach number, M_{tun}
OMEG+R	rotor tip speed, ΩR
PITCH	aircraft pitching moment, M, ft-lb
PITCH/Q	aircraft pitching moment/q, ft ³
PITCH,R	rotor pitching moment, ft-lb
PSI	aircraft yaw angle
QPSF	free stream dynamic pressure, q, lb/ft ²
RHO100	free stream density multiplied by 100, slugs/ft ³

TABLE 7. CONTINUED

LABEL	PARAMETER
ROLL	aircraft rolling moment, ℓ , ft-lb
ROLL/Q	aircraft rolling moment/q, ft ³
ROLL,R	rotor rolling moment, ft-lb
RPM	rotor rotational speed, rev/min
RPM,%	rotor rotational speed expressed as percent of nominal value, RPM/343.6
S4	inter-rotor shaft fairing
SIDE	aircraft side force, Y, lb
SIDE/Q	aircraft side force/q, ft ³
SIDE,R	rotor side force, lb
TEMP	free stream temperature, deg fahrenheit
TIPM	rotor rotational Mach number, M_{tip}
TORQ	total rotor shaft torque, except for transmission losses, TORQ = HP x 550/ Ω , ft-lb
VKTS	free stream velocity, knots
V/OR	rotor advance ratio, μ
YAW	aircraft yawing moment, N, ft-lb
YAW/Q	aircraft yawing moment/q, ft ³
YAW,R	rotor yawing moment, ft-lb

TABLE 8. CONTROL AND LOADS DATA PARAMETERS

LABEL	PARAMETER
ALPH	angle of attack in free air, α , deg
A1	mean cosine component of blade pitch, A_1 , deg
A1P	differential cosine component of blade pitch, A_1' , deg
B1	mean sine component of blade pitch, B_1 , deg
B1P	differential sine component of blade pitch B_1' , deg
COS	cosine component of fourier series
GB LNAC	gearbox longitudinal acceleration, one-half peak-to-peak, g's
GB LTAC	gearbox lateral acceleration, one-half peak-to-peak, g's
GB VTAC	gearbox vertical acceleration, one-half peak-to-peak, g's
HARMONIC	harmonic number of fourier series
HST VTAC	horizontal stabilizer vertical acceleration, one-half peak-to-peak, g's
LAS LTAC	left aft support strut lateral acceleration, one-half peak-to-peak, g's
LRCB	lower rotor chordwise bending, ft-lb
LRN1	lower rotor normal bending .1R, ft-lb
LRN2	lower rotor normal bending .2R, ft-lb
LRN3	lower rotor normal bending .3R, ft-lb

TABLE 8. CONTINUED

LABEL	PARAMETER
LRN6	lower rotor normal bending .6R, ft-lb
LRGPL	lower rotor green blade pitch link load, lb
LRRPL	lower rotor red blade pitch link load, lb
LRYPPL	lower rotor yellow blade pitch link load, lb
LVF VTAC	left vertical fin vertical acceleration, one-half peak-to-peak, g's
MN	mean load
OS	one-half peak-to-peak oscillatory load
PSI	blade azimuth angle, ψ , deg
SIN	sine component of fourier series
THETA	mean blade root pitch, θ_0 , deg
THETAP	differential collective, θ_0' , deg
URCB	upper rotor chordwise bending, ft-lb
URN1	upper rotor normal bending .1R, ft-lb
URN2	upper rotor normal bending .2R, ft-lb
URN3	upper rotor normal bending .3R, ft-lb
URN6	upper rotor normal bending .6R, ft-lb

TABLE 8. CONTINUED

LABEL	PARAMETER
URBPL	upper rotor blue blade pitch link load, lb
URRPL	upper rotor red blade pitch link load, lb
URYPL	upper rotor yellow blade pitch link load, lb
URSB	upper rotor shaft bending stress, lb/in ²
VKTS	free stream velocity, knots
V/OR	rotor advance ratio, μ
#1J VTAC	#1 J60 vertical acceleration, one-half peak-to-peak, g's
#2J VTAC	#2 J60 vertical acceleration, one-half peak-to-peak, g's
#1Q	#1 PT6 engine output torque before reduction gearing, ft-lb
#2Q	#2 PT6 engine output torque before reduction gearing, ft-lb

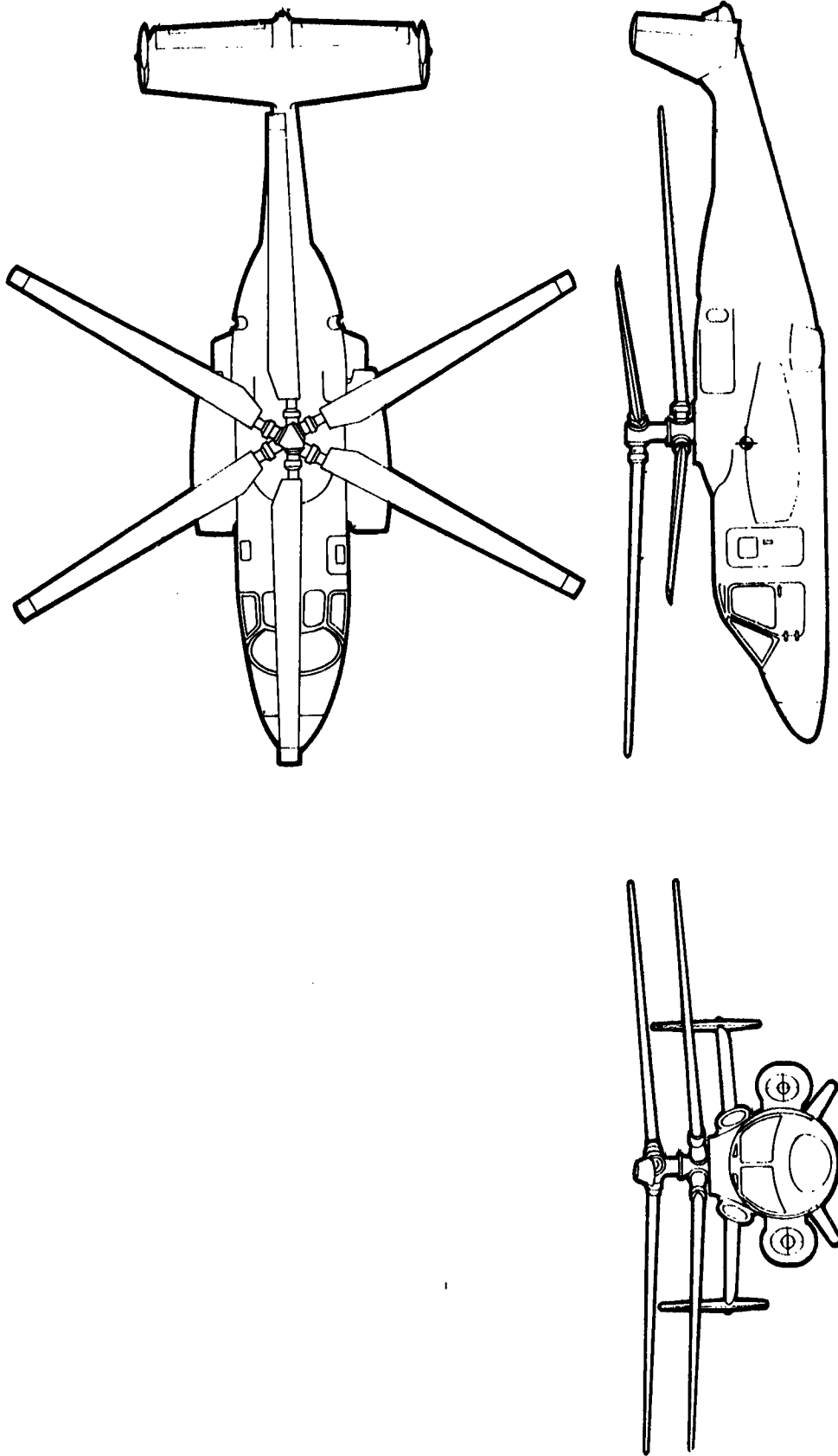


Figure 1. 3—VIEW DRAWING OF ABC

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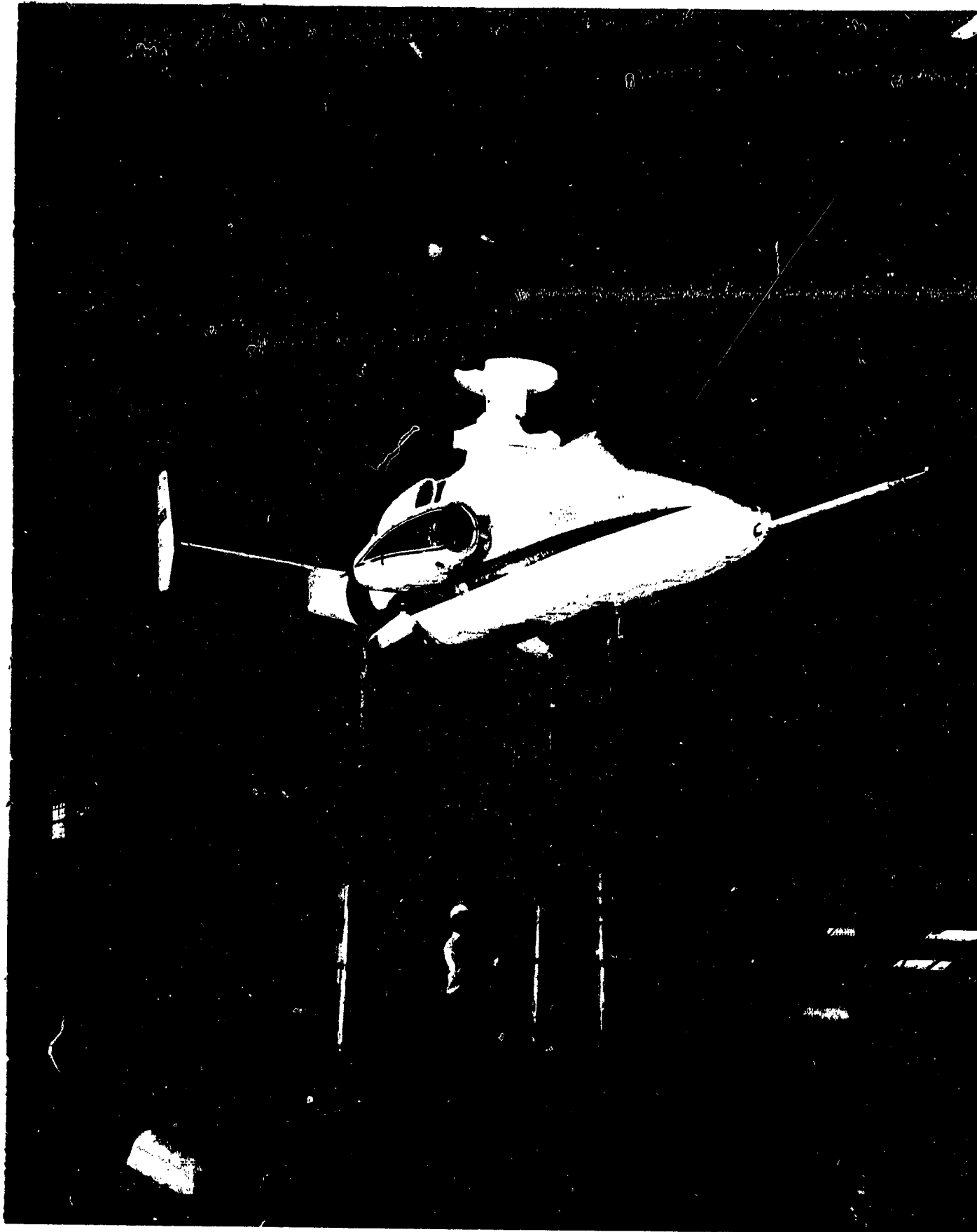


Figure 2(a). Front View of ABC with Hub Fairings Installed

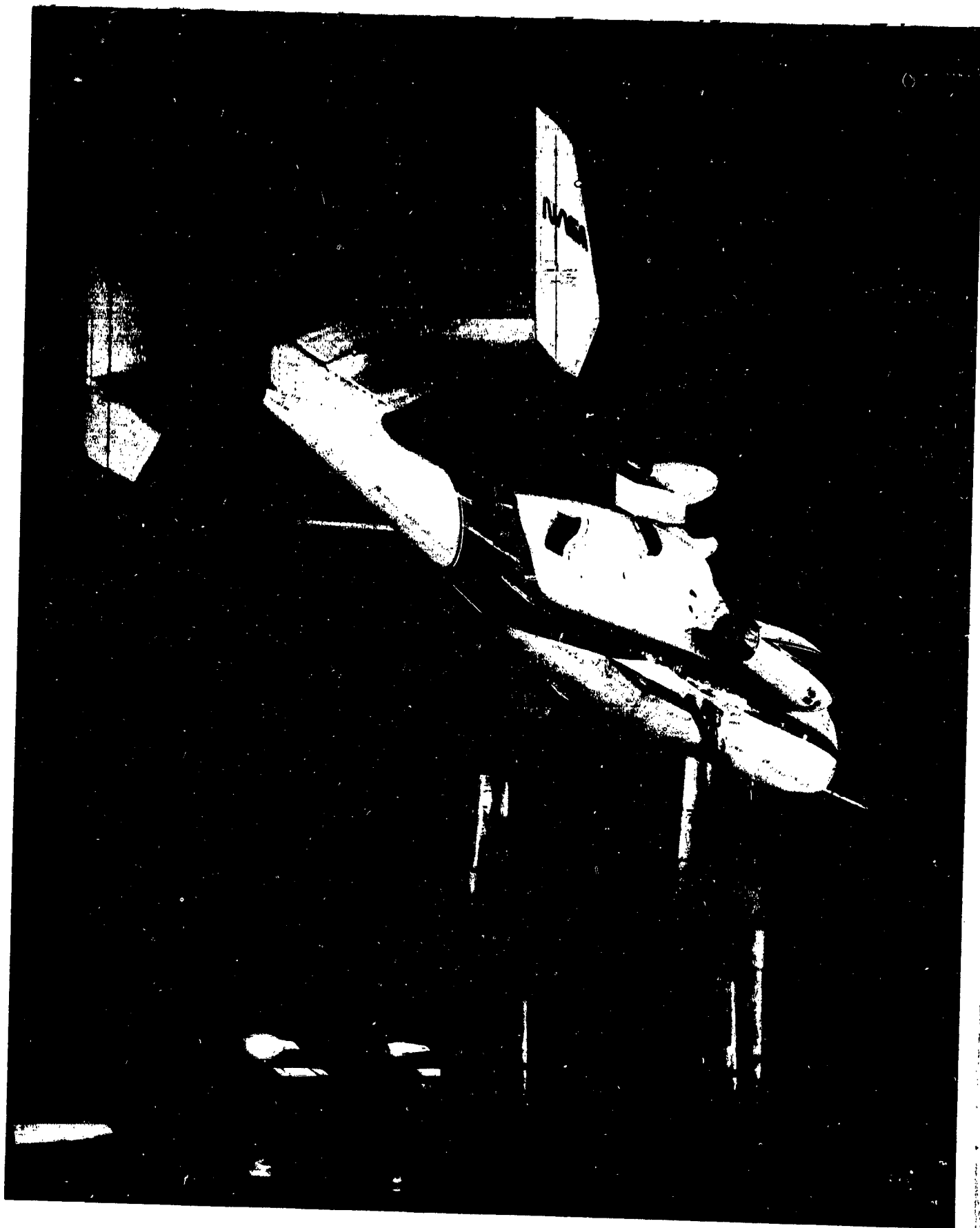


Figure 2(b). Rear View of ABC with Hub Fairings Installed

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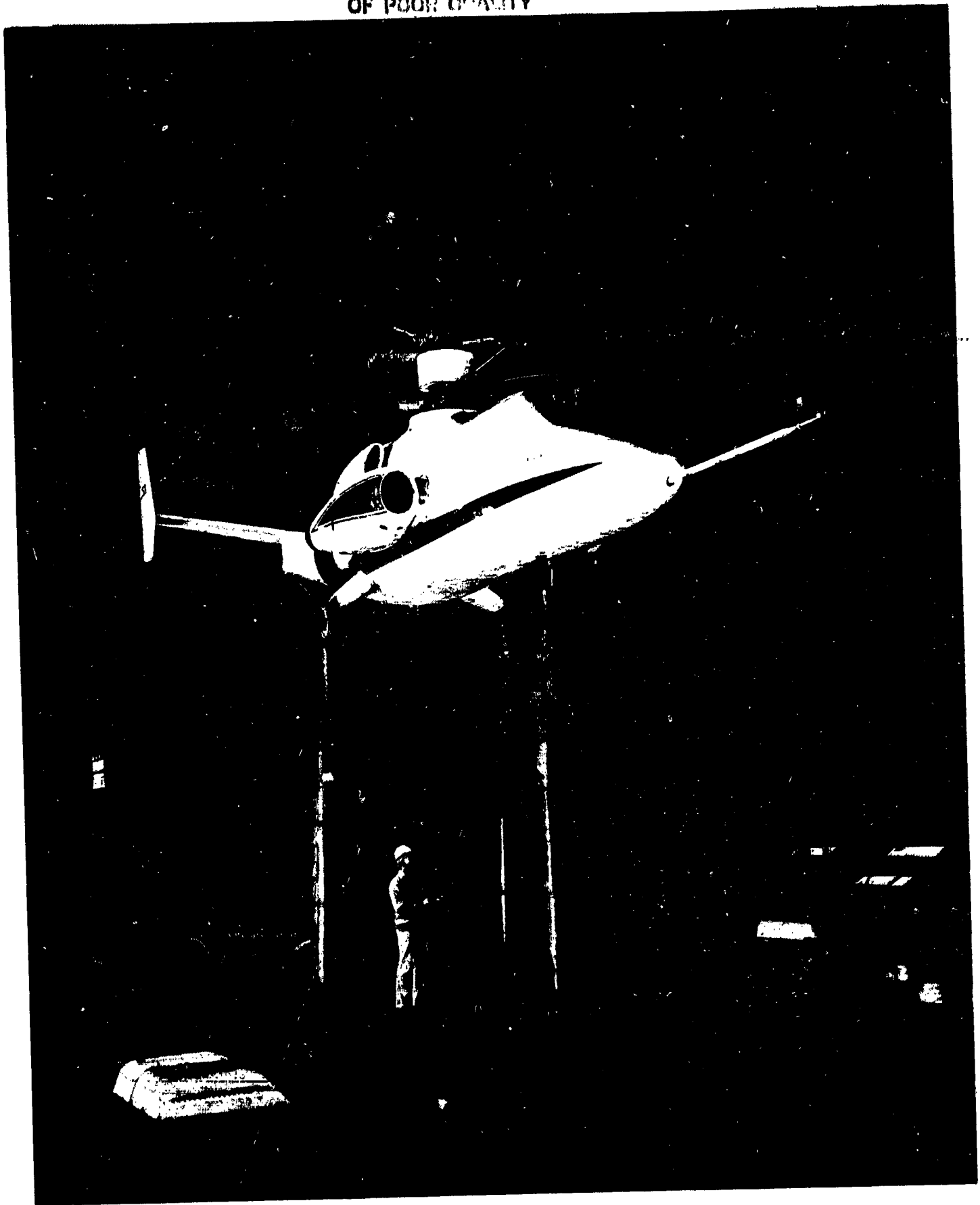


Figure 2(c). Front View of ABC with Instrumentation Can Installed

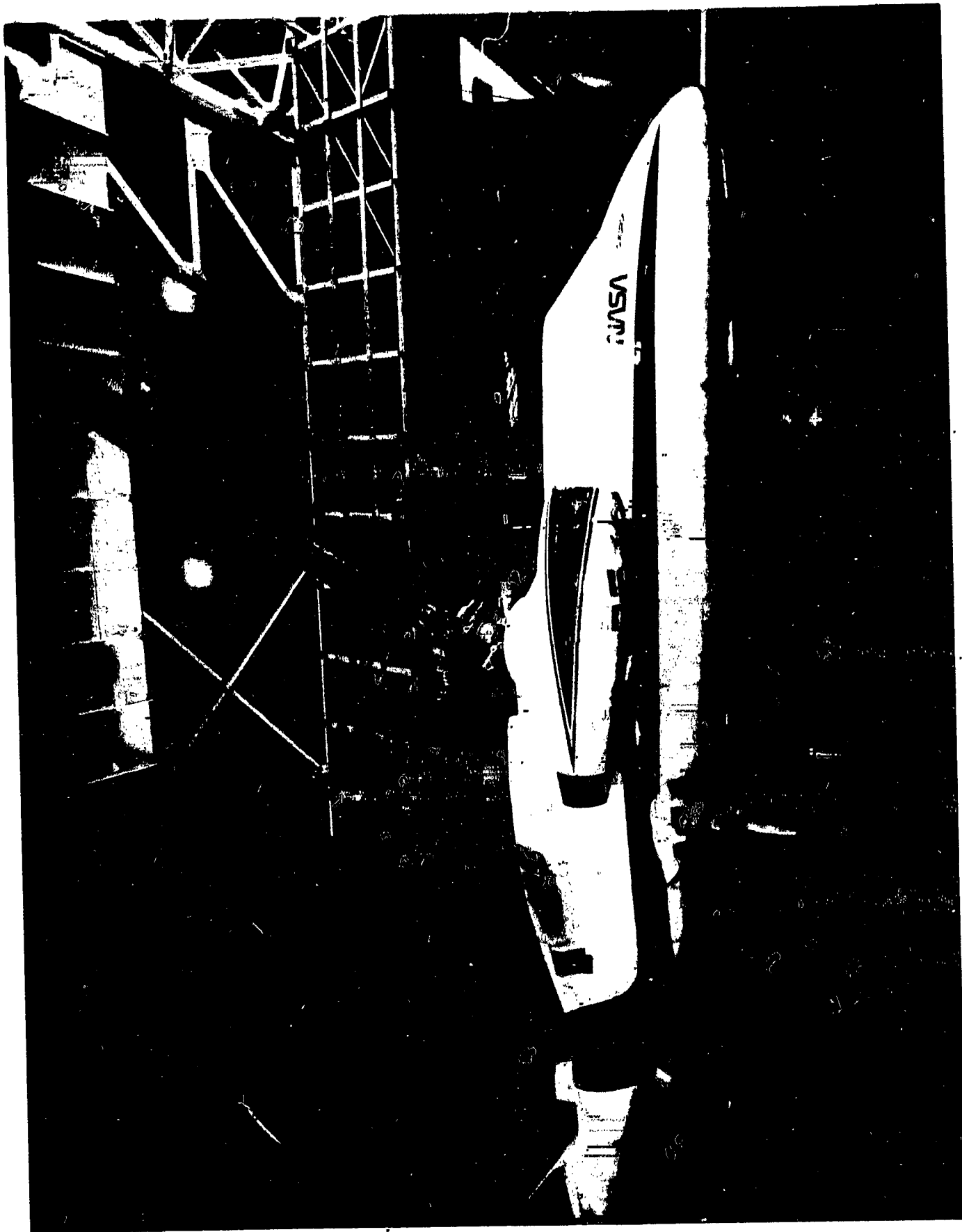


Figure 2(d). Side View of ABC with No Hub Fairings Installed

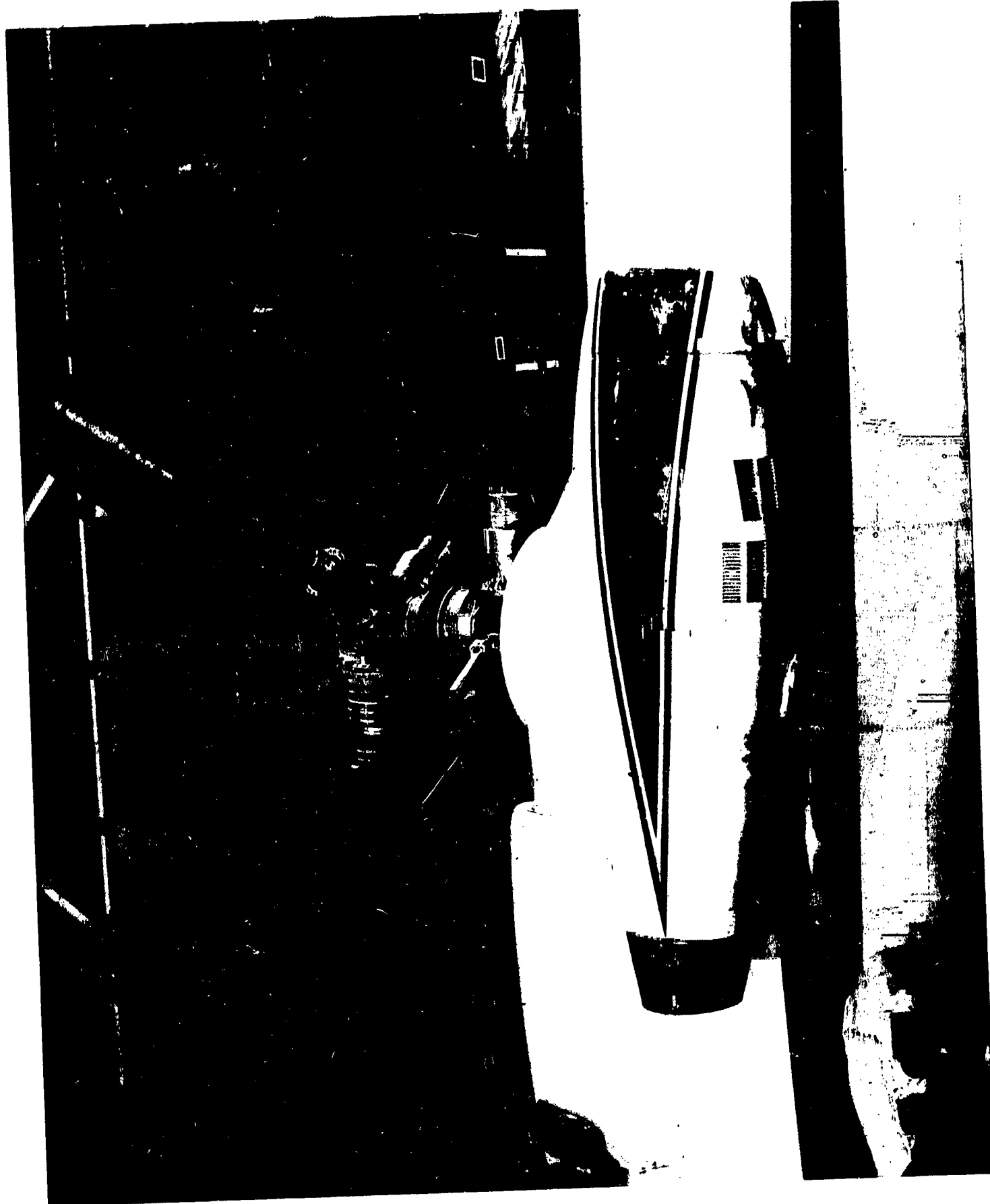


Figure 2(e). Close-up View of Rotor Hubs

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Figure 2(f). Close-up View of Model Support Struts

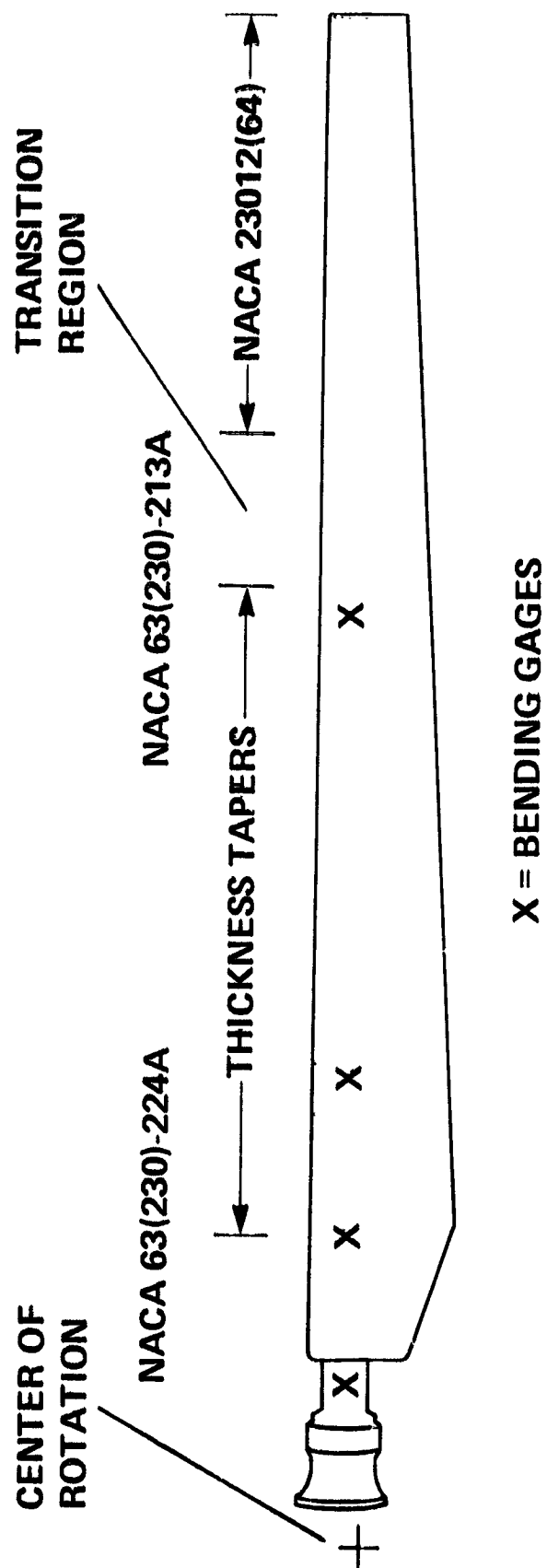


Figure 3. SKETCH OF ROTOR BLADE

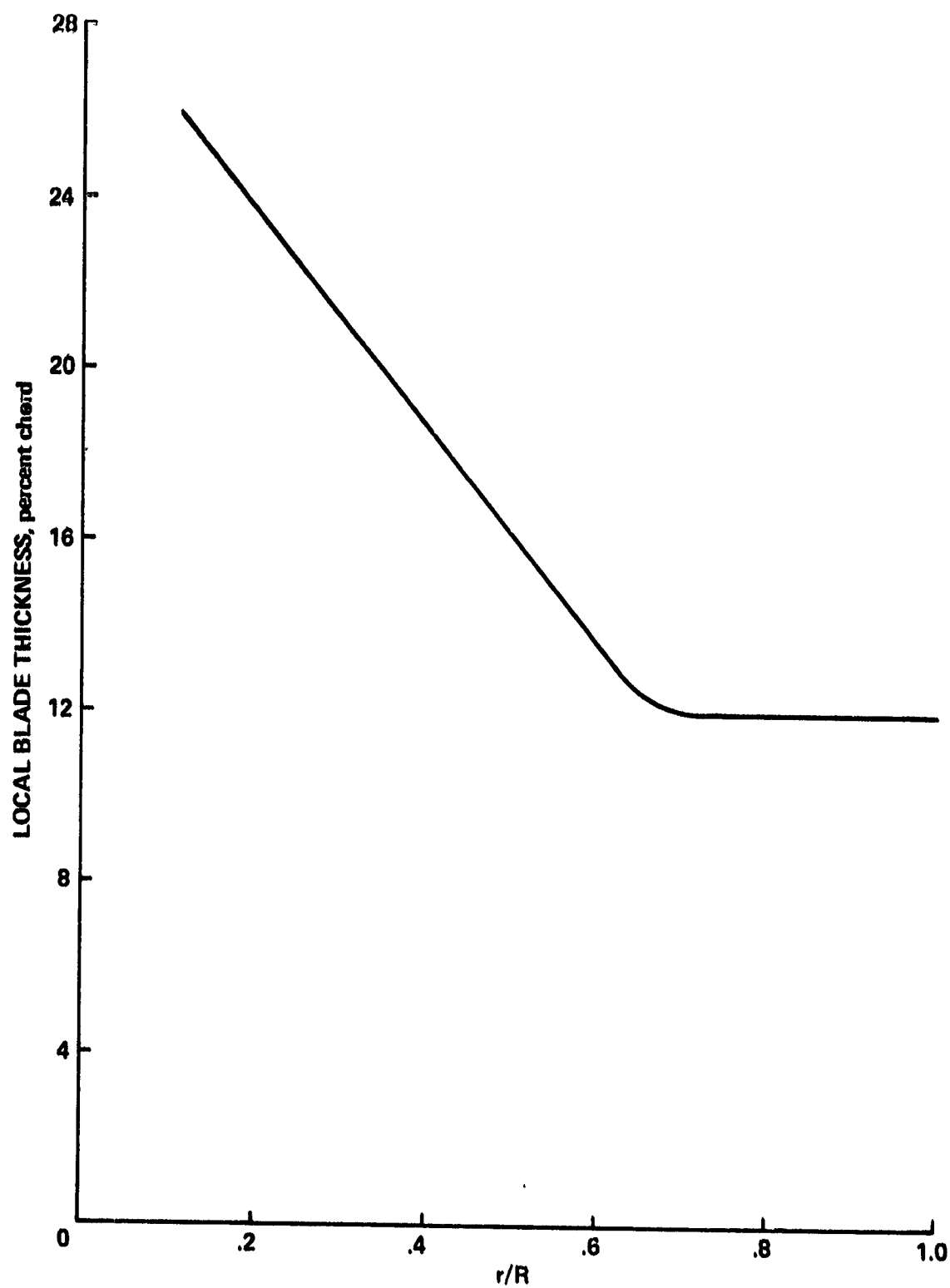


Figure 4. BLADE THICKNESS DISTRIBUTION

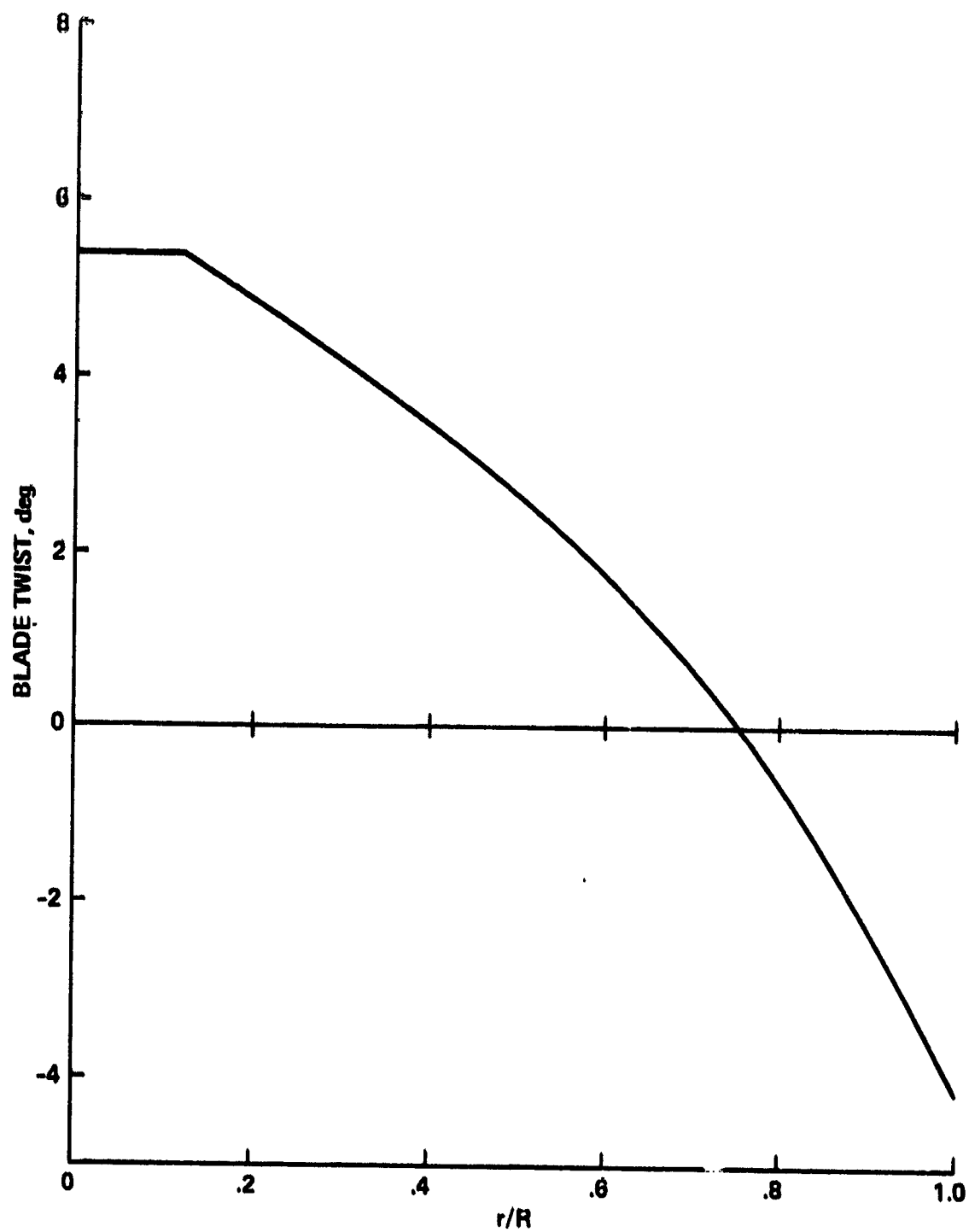


Figure 5. BLADE TWIST DISTRIBUTION

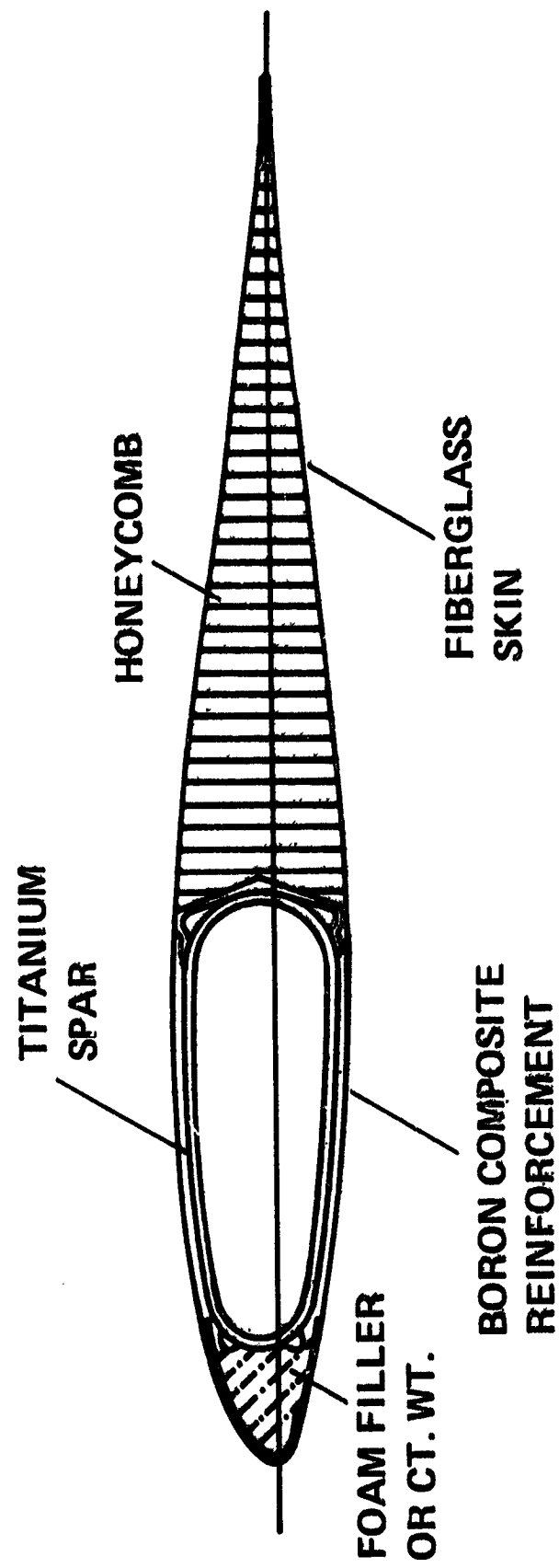


Figure 6. TYPICAL BLADE CROSS SECTION

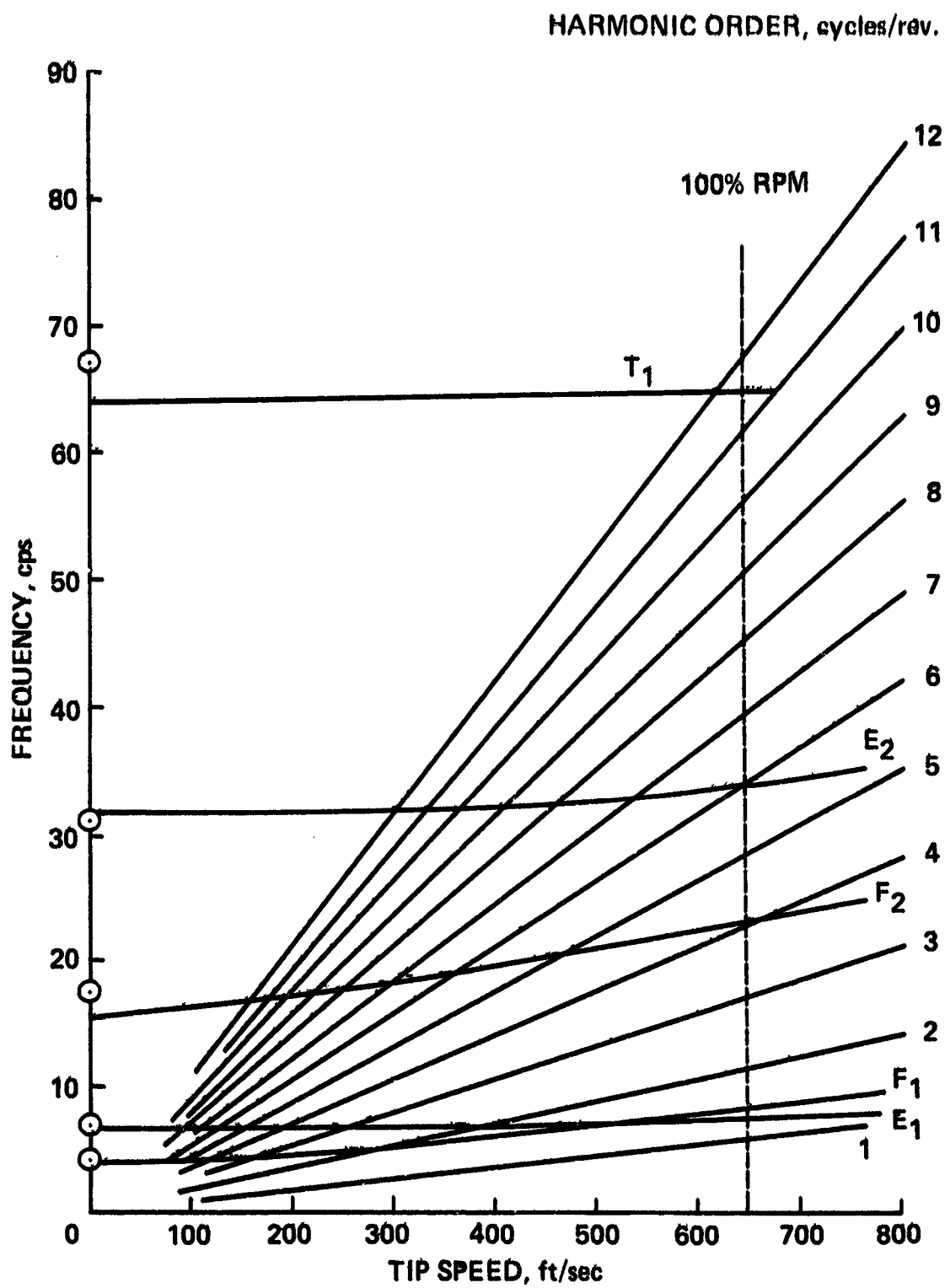


Figure 7. BLADE NATURAL FREQUENCY DIAGRAM

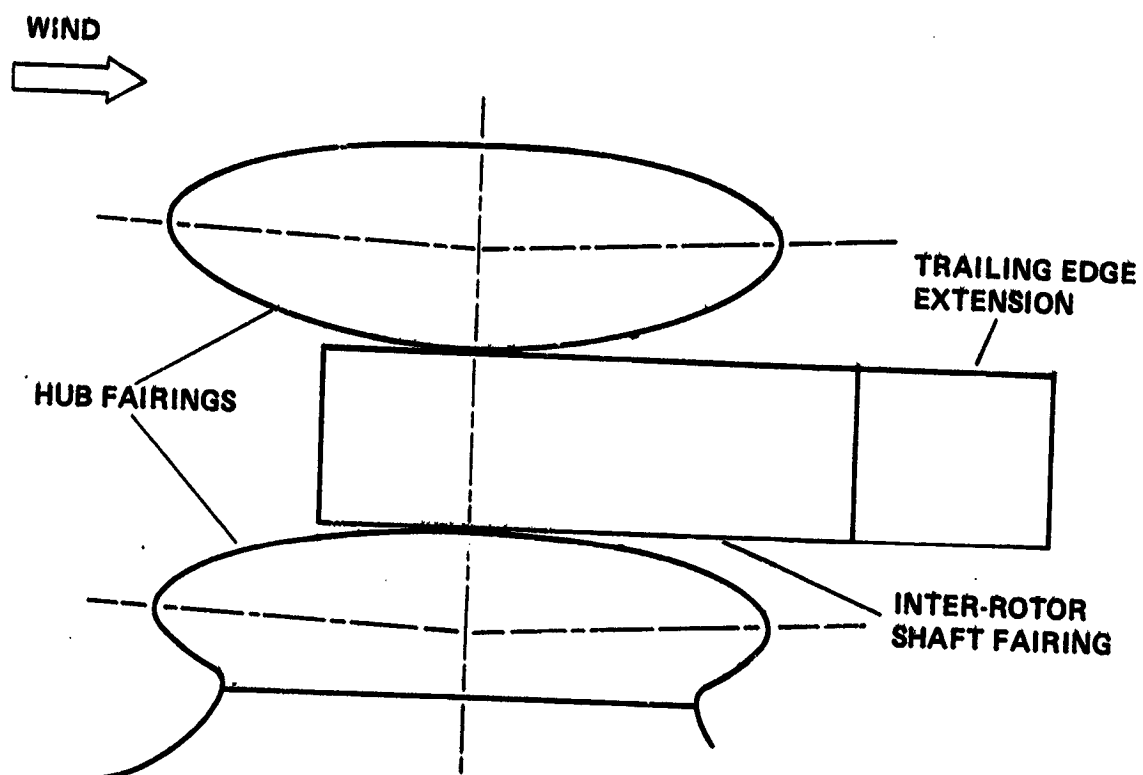


Figure 8. SKETCH OF HUB FAIRINGS

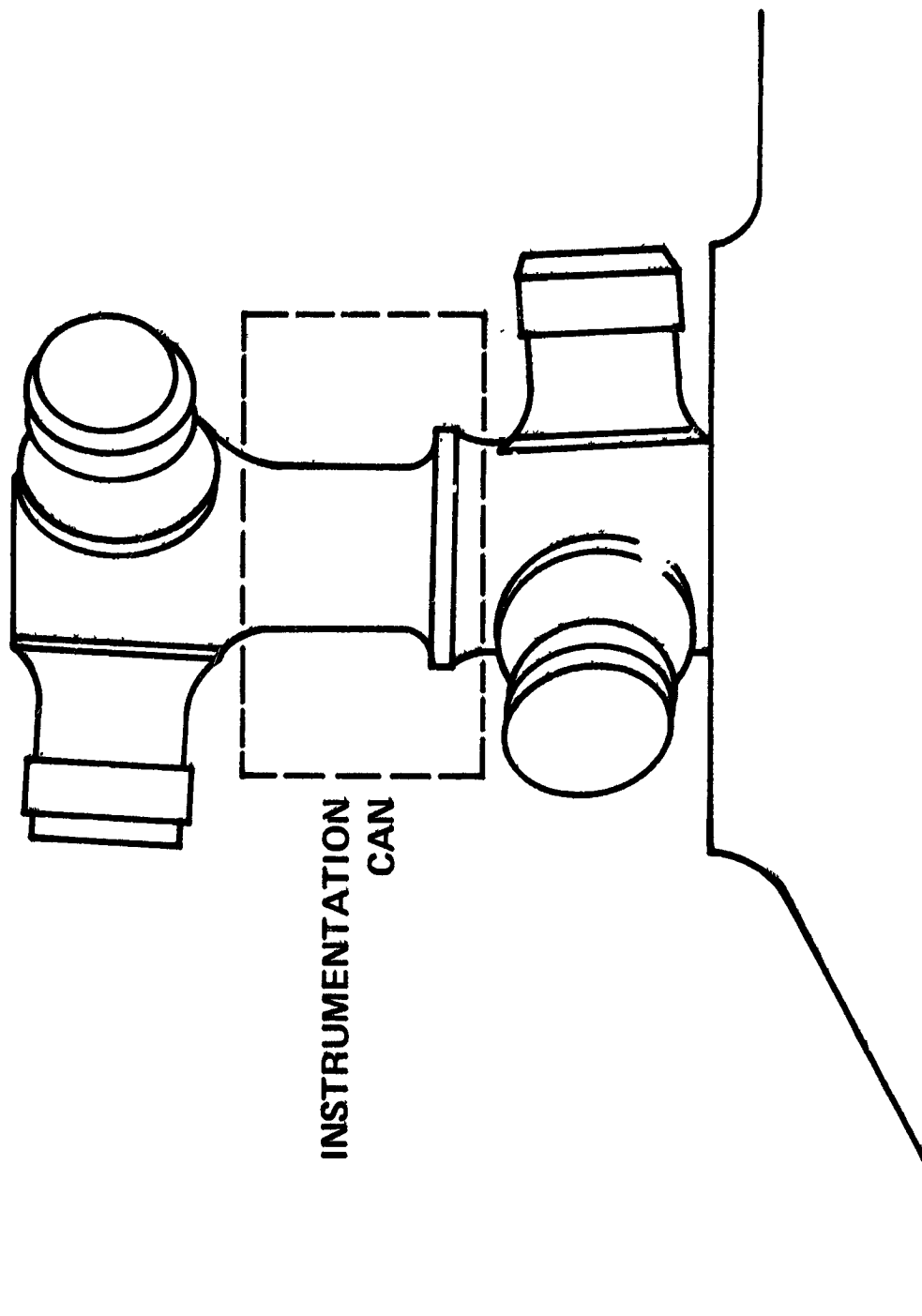


Figure 9. SKETCH OF ROTOR HUB AND INSTRUMENTATION CAN

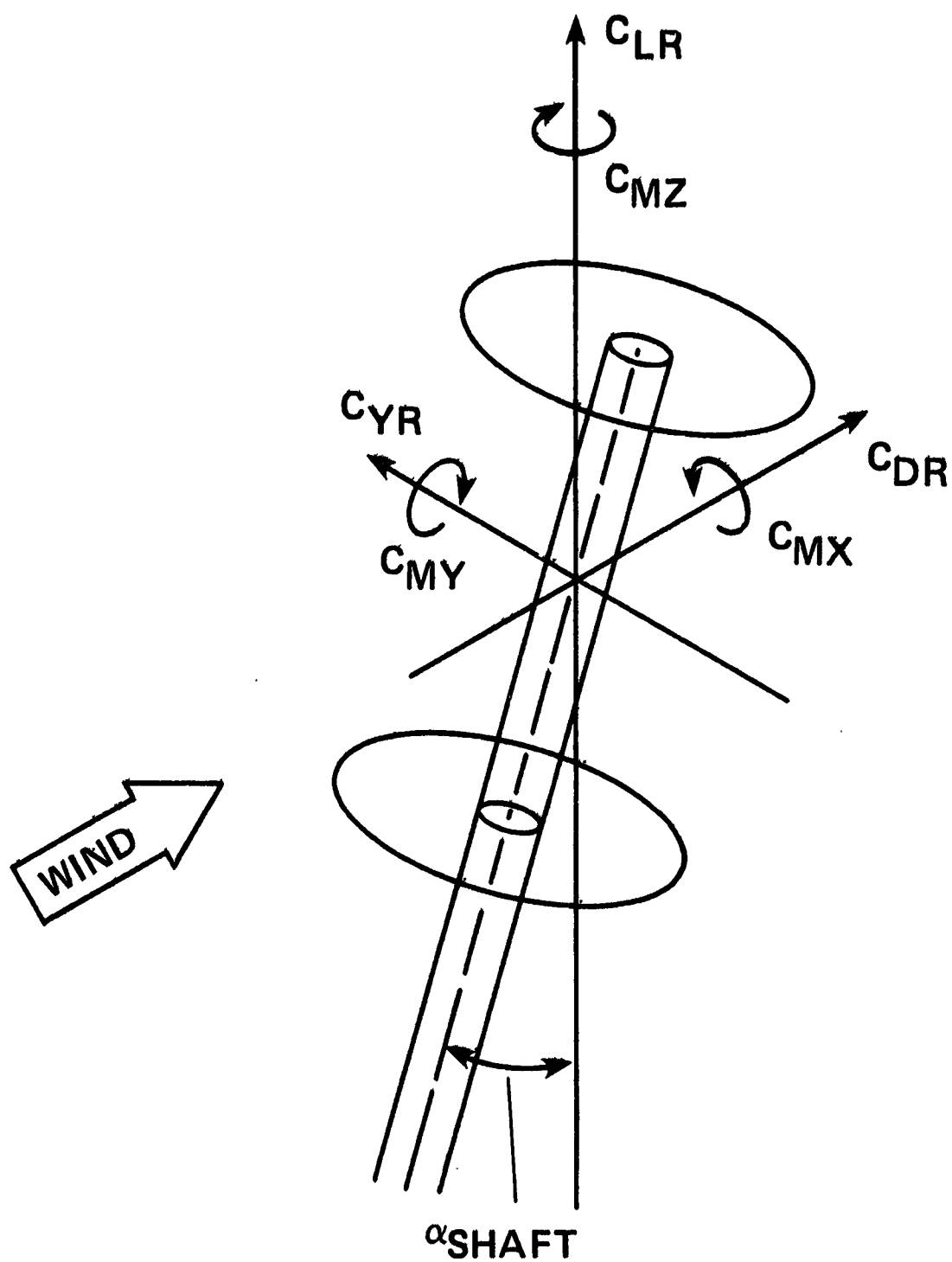


Figure 10. SKETCH OF FORCES AND MOMENTS
SHOWING POSITIVE DIRECTIONS

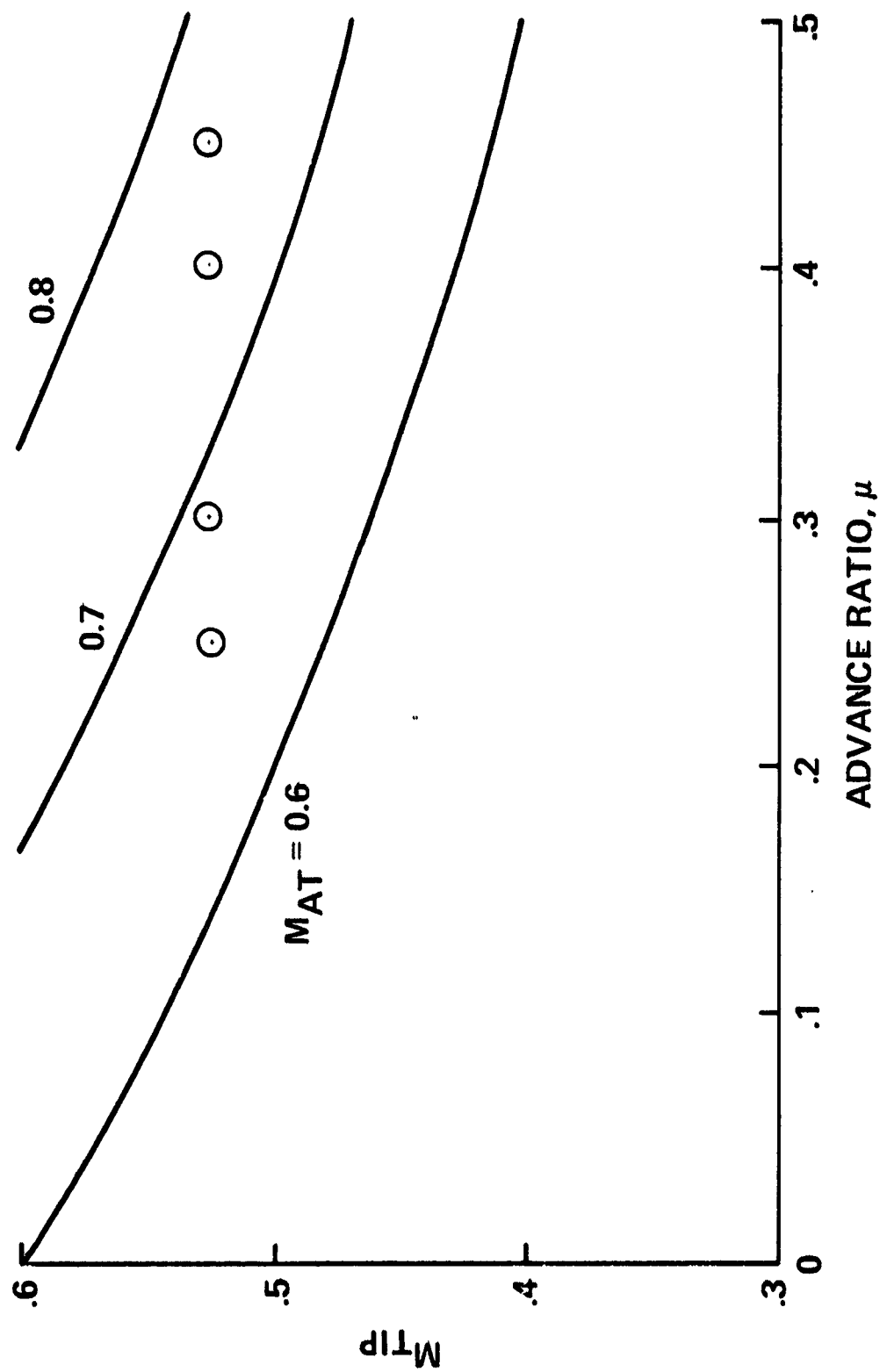


Figure 11. ROTOR OPERATING CONDITIONS

APPENDIX L

Equations Used to Correct for Forces and Moments Produced by Exposed Model. Support Struts.

The strut fairings were canted 34° down relative to the horizontal. The lift and drag forces on the fairings were calculated as follows:

ψ = yaw angle, deg, positive nose right

α = corrected angle of attack

"RF" subscript denotes right strut fairing

"LF" subscript denotes left strut fairing

$$\alpha_{RF} = \cos 34^\circ \alpha + \sin 34^\circ \psi$$

$$\alpha_{LF} = \cos 34^\circ \alpha - \sin 34^\circ \psi$$

$$C_{LRF} = 0.02698 \alpha_{RF} + 1.8 \sin \alpha_{RF} |\sin \alpha_{RF}|$$

$$C_{LLF} = 0.02698 \alpha_{LF} + 1.8 \sin \alpha_{LF} |\sin \alpha_{LF}|$$

$$Lift_{RF} = 5.22 q C_{LRF}$$

$$Lift_{LF} = 5.22 q C_{LLF}$$

$$C_{DLF} = 0.02698 \alpha_{RF} \tan (\alpha_{RF}/2) + 1.8 \sin \alpha_{RF} |\sin \alpha_{RF}| \quad (\text{induced})$$
$$+ 0.02002 + 0.016457 C_{LRF}^2 \quad (\text{profile})$$

$$C_{DLF} = 0.02698 \alpha_{LF} \tan (\alpha_{LF}/2) + 1.8 \sin \alpha_{LF} |\sin \alpha_{LF}| \quad (\text{induced})$$
$$+ 0.02002 + 0.016457 C_{LLF}^2 \quad (\text{profile})$$

$$Drag_{RF} = 5.22 q C_{DRF}$$

$$Drag_{LF} = 5.22 q C_{DLF}$$

$$\text{DragRFI} = 0.2947 q \quad (\text{fuselage/fairing interference})$$

$$\text{DragLFI} = 0.2947 q \quad (\text{fuselage/fairing interference})$$

$$\text{DragNT} = 0.75 q \quad (\text{nose strut tip drag})$$

$$\text{DragRFT} = 1.5 q \quad (\text{strut tip drag})$$

$$\text{DragLFT} = 1.5 q \quad (\text{strut tip drag})$$

The corrections made to the aircraft forces and moments due to the lift and drag on the fairings were as follow:

"U" subscript means uncorrected

"C" subscript means corrected

$$\text{Lift}_C = \text{Lift}_U - \cos 34^\circ (\text{Lift}_{RF} + \text{Lift}_{LF})$$

$$\begin{aligned} \text{Drag}_C = \text{Drag}_C - (\text{Drag}_{RF} + \text{Drag}_{RFI} + \text{Drag}_{RFT} \\ + \text{Drag}_{LF} + \text{Drag}_{LFI} + \text{Drag}_{LFT} + \text{Drag}_{NT}) \end{aligned}$$

$$\text{Side Force}_C + \text{Side Force}_U - \sin 34^\circ (\text{Lift}_{RF} - \text{Lift}_{LF})$$

$$\begin{aligned} \text{Pitching Moment}_C = \text{Pitching Moment}_U + \cos 34^\circ \text{Lift}_{RF} (X_{\cos} \alpha \cos \psi \\ + Y \sin \psi - Z \sin \alpha) + \cos 34^\circ \text{Lift}_{LF} (X_{\cos} \alpha \cos \psi \\ - Y \sin \psi - Z \sin \alpha) + (\text{Drag}_{RF} + \text{Drag}_{LF}) (X \sin \alpha + Z \cos \alpha) \\ + (\text{Drag}_{RFI} + \text{Drag}_{LFI}) (X_I \sin \alpha + Z_I \cos \alpha) \\ + (\text{Drag}_{RFT} + \text{Drag}_{LFT}) (X_T \sin \alpha + Z_T \cos \alpha) \\ + \text{Drag}_{NT} (Z_N \cos \alpha - X_N \sin \alpha) \end{aligned}$$

$$\begin{aligned} \text{Rolling Moment}_G = & \text{Rolling Moment}_U + \cos 34^\circ \text{Lift}_{RF} (Y \cos \psi - X \sin \psi \cos \alpha) \\ & - \cos 34^\circ \text{Lift}_{LF} (Y \cos \psi + X \sin \psi \cos \alpha) + \sin 34^\circ Z \cos \alpha \\ & (\text{Lift}_{RF} - \text{Lift}_{LF}) \end{aligned}$$

$$\begin{aligned} \text{Yawing Moment}_C = & \text{Yawing Moment}_U - \text{Drag}_{RF} (\cos \psi - X \sin \psi \cos \alpha) + \text{Drag}_{LF} \\ & (Y \cos \psi + X \sin \psi \cos \alpha) + 2 \text{Drag}_{RFI} X_I \sin \psi \cos \alpha \\ & - Y_T \cos \psi (\text{Drag}_{RFT} - \text{Drag}_{LFT}) + X_T \sin \psi \cos \psi \\ & (\text{Drag}_{RFT} - \text{Drag}_{LFT}) - \text{Drag}_{NT} X_N \sin \alpha \end{aligned}$$

The dimensions X , X_T , X_N etc. are the distances (in feet) between the aircraft moment resolving center (aircraft c.g.) and the locations of the various lift and drag producing components, such as the strut fairing, the strut fairing tip, etc.

$X = 4.845 \text{ ft}$	$X_T = 4.683 \text{ ft}$
$Y = 2.925 \text{ ft}$	$Y_T = 4.167 \text{ ft}$
$Z = 3.475 \text{ ft}$	$Z_T = 4.4 \text{ ft}$
$X_I = 4.976 \text{ ft}$	$X_N = 8.4 \text{ ft}$
$X_I = 3.055 \text{ ft}$	$Z_N = 4.25 \text{ ft}$

APPENDIX II

Equations Used to Correct for the Thrust of the J60 Engines.

The J60 engines on the ABC were calibrated in an engine test cell before the wind tunnel test. This calibration defined the relationship between static thrust and exhaust pressure ratio (EPR). During the wind tunnel test, the measured EPR and the test cell calibration were used to calculate the static thrust of each engine. This value for the static thrust was analytically corrected to account for the effect on the thrust of the nonzero velocity in the tunnel.

$$\text{Thrust} = \delta (T_{\text{EPR}} + \Delta T_M) \quad (\text{lbs})$$

where δ = barometric pressure (in Hg)/29.92

T_{EPR} = static thrust calculated from thrust vs. EPR calibration, lbs

ΔT_M = correction to thrust due to nonzero wind velocity, lbs

The value of T_{EPR} as a function of the measured EPR was determined by a linear interpolation between the nearest two values of EPR and T_{EPR} in the following table:

EPR	T_{EPR}
1.0	0
1.063	200
1.129	400
1.198	600
1.267	800
1.337	1000
1.410	1200
1.486	1400
1.564	1600
1.641	1800
1.719	2000
1.796	2200
1.873	2400
1.948	2600
2.022	2800
2.098	3000

The value of ΔT_M was also determined by linear interpolation. The interpolation for tunnel Mach number, M_{tun} , was performed first and the interpolation for EPR was performed next.

ΔT_M as a Function of M_{tun} and EPR

		M_{tun}						
		0	0.05	0.1	0.15	0.2	0.25	0.3
EPR	1.0	0	0	0	0	0	0	0
	1.1	0	-22	-40	-54	-64	-72	-72
	1.2	0	-40	-71	-96	-113	-127	-127
	1.3	0	-57	-101	-135	-160	-179	-179
	1.4-2.0	0	-64	-114	-155	-183	-202	-205
	2.1	0	-64	-114	-155	-183	-202	-192

After the thrust of each J60 engine had been calculated by the above method, the forces and moments produced by the engines were removed from the measured forces and moments using the following equations:

"c" means corrected

"u" means uncorrected

$$\text{Lift}_c = \text{Lift}_u - \sin \alpha (T_R + T_L)$$

$$\text{Drag}_c = \text{Drag}_u + \cos \alpha (T_R + T_L)$$

$$\text{Pitching Moment}_c = \text{Pitching Moment}_u - (T_R + T_L) (1.88 \sin \alpha \cos \alpha + \cos \alpha (1.21 + 1.88 \sin \alpha))$$

$$\text{Rolling Moment}_c = \text{Rolling Moment}_u - 4.42 (T_L + T_R) \sin \alpha$$

$$\text{Yawing Moment}_c = \text{Yawing Moment}_u - 4.42 (T_R + T_L) \cos \alpha$$

Three errors are evident in these equations which have not been corrected in the data presented in this paper.

- (1) the underlined "-" sign in the pitching moment equation should be a "+" sign and the underlined "+" sign should be a "-" sign.
- (2) the underlined "-" sign in the yawing moment equation should be a "+" sign.
- (3) the effect on the aircraft forces and moments due to aircraft yaw angle changes have not been included in these equations.

The effect of these errors on the data presented here has been evaluated, and in no case does the effect of any error exceed 2% of the data presented. The only exception to this is in Run 10, where significant amounts of auxiliary propulsion thrust were used.

SECTION A

Aircraft Performance Data

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DATA IN THE FOLLOWING GROUP OF POINTS SATISFIED THE FOLLOWING SEQUENCE OF CONSTRAINT CODES -
1A

PT	VTUN QPSF	ALFS,U ALFS,C PSI	J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHOL00
PT 2	113.7 0.1766 45.3	5.0 5.1 0.0	343.0 0. 29.96	16.76 25.71 -0.22	-209.0 20.3 5.5	79.0 0.2261
PT 4	119.0 0.1769 45.5	2.5 2.5 0.0	343.0 0. 29.96	15.96 11.67 -0.37	-106.3 13.7 3.9	80.0 0.2257
PT 5	113.8 0.1767 45.4	0.0 -0.0 0.0	343.0 0. 29.96	15.73 -0.44 -0.22	-5.3 4.4 4.9	80.0 0.2257
PT 6	119.0 0.1769 45.5	-2.5 -2.5 0.0	342.9 0. 29.96	16.05 -14.09 0.31	105.1 -0.3 1.9	80.0 0.2257
PT 7	119.1 0.1771 45.6	-5.0 -5.1 0.0	342.8 0. 29.96	17.14 -28.08 0.59	220.8 -3.6 4.6	80.0 0.2257
PT 8	119.0 0.1770 45.5	-7.5 -7.6 0.0	342.7 0. 29.96	18.90 -44.30 0.53	361.1 -6.4 2.1	80.0 0.2257
PT 9	118.7 0.1765 45.3	-9.8 -10.0 0.0	342.6 0. 29.96	21.93 -57.43 0.95	462.9 -6.3 4.8	80.0 0.2257
PT 10	178.4 0.2639 98.8	-2.5 -2.5 0.0	342.8 0. 29.96	16.11 -15.42 -0.59	110.6 -5.8 7.3	90.0 0.2178
PT 11	178.3 0.2635 98.5	-3.8 -3.9 0.0	342.6 0. 29.96	16.63 -23.04 -0.30	183.6 -5.6 6.4	91.0 0.2174

	VKTS KTUN UPSF	ALFS,U ALFS,C PSI	J THPST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 12	173.5 0.2635 98.5	0.0 -0.0 0.0	342.8 0. 29.96	15.67 -2.23 -0.29	-19.3 -0.8 0.8	92.0 0.2170
PT 12	178.6 0.2634 98.4	2.5 2.5 0.0	342.9 0. 29.96	15.81 9.19 -0.80	-118.2 4.7 6.1	93.0 0.2166
PT 14	178.5 0.2633 98.3	5.0 5.1 0.0	343.0 0. 29.96	16.58 21.15 -0.99	-241.1 8.8 4.9	93.0 0.2166
PUN 12 PT 2	119.5 0.1787 46.2	10.0 10.1 0.0	343.7 164. 29.82	18.12 51.07 1.00	-430.8 12.0 8.6	74.0 0.2271
5 PT 4	119.2 0.1782 45.9	7.5 7.6 0.0	343.7 167. 29.82	16.61 39.74 0.91	-312.7 14.0 3.4	74.0 0.2271
PT 5	119.2 0.1782 45.9	5.0 5.1 0.0	343.6 166. 29.81	15.59 26.15 -0.13	-210.4 17.1 9.6	74.0 0.2270
PT 6	119.3 0.1780 45.8	2.5 2.5 0.0	343.4 164. 29.81	14.97 12.96 -0.46	-103.6 11.6 10.5	76.0 0.2262
PT 7	119.4 0.1781 45.9	0.0 -0.0 0.0	343.3 164. 29.81	14.79 -0.22 -0.33	-1.7 3.1 11.9	77.0 0.2258
PT 8	119.4 0.1779 45.7	-2.5 -2.5 0.0	343.3 157. 29.81	15.11 -13.43 0.02	100.9 -1.7 8.6	78.0 0.2254
PT 9	118.5 0.1766 45.1	-5.0 -5.1 0.0	343.1 147. 29.81	15.98 -28.89 -0.13	233.2 -1.9 5.0	78.0 0.2254

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	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	J THRUST BAR	RPM	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHD10C
PT 10	119.0 0.1772 45.4	-7.5 -7.6 0.0	342.9 140. 29.81		17.61 -44.71 0.00	390.5 -9.5 6.4	79.0 0.2250
PT 11	118.8 0.1766 45.1	-9.8 -10.0 0.0	342.9 136. 29.81		21.43 -57.12 0.24	475.3 -3.4 1.2	80.0 0.2246
PT 12	179.2 0.2666 100.2	0.0 -0.0 0.0	343.3 18. 29.81		14.62 -2.89 -0.49	0.5 -1.5 8.6	84.0 0.2190
PT 13	178.6 0.2649 99.0	-3.8 -3.9 0.0	343.1 8. 29.81		15.36 -22.78 -0.44	197.6 -6.7 11.9	87.0 0.2178
PT 14	178.6 0.2647 98.8	-2.5 -2.5 0.0	343.0 12. 29.81		14.96 -15.40 -0.61	120.4 -4.4 7.9	88.0 0.2175
PT 15	178.7 0.2644 98.6	2.5 2.5 0.0	343.2 19. 29.81		14.71 9.31 -0.57	-103.8 3.0 10.9	90.0 0.2167
PT 16	178.9 0.2641 98.4	5.0 5.1 0.0	343.3 19. 29.81		15.09 22.68 -0.60	-219.3 6.0 8.1	92.0 0.2159
PT 17	178.8 0.2637 98.1	7.5 7.6 0.0	343.4 21. 29.81		16.51 34.10 -0.02	-364.9 8.6 10.9	93.0 0.2155
PT 18	178.7 0.2634 97.9	10.0 10.1 0.0	343.4 18. 29.81		17.76 50.01 0.30	-360.5 4.1 14.4	94.0 0.2152
PT 19	178.9 0.2632 97.7	10.0 10.1 0.0	22.2 17. 29.81		17.21 49.76 -0.07	-368.2 -1.3 14.8	96.0 0.2144

	VKTS KTUN QPSF	ALFS,U ALFS,C PSI	J THRUST BAR	RPM	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP KHD100
PT 20	179.2 0.2631 97.7	7.5 7.6 0.0	18.0 22. 29.81		16.06 37.23 -0.52	-278.2 4.9 13.9	98.0 0.2136
PT 21	179.1 0.2630 97.6	5.0 5.1 0.0	18.9 23. 29.81		14.91 24.15 -0.15	-169.9 4.0 12.3	98.0 0.2136
PT 22	179.2 0.2629 97.5	2.5 2.5 0.0	24.6 23. 29.81		14.19 8.85 0.31	-97.0 5.0 14.4	99.0 0.2133
PT 23	177.9 0.2639 98.2	0.0 -0.0 0.0	18.3 22. 29.78		14.05 -3.26 -0.92	18.3 -2.6 7.0	87.0 0.2177
PT 24	178.3 0.2638 98.1	-2.5 -2.5 0.0	18.3 15. 29.78		14.41 -15.88 -0.60	132.2 -5.3 6.8	90.0 0.2165
PT 25	178.3 0.2635 97.9	-3.8 -3.9 0.0	18.3 9. 29.78		14.86 -23.75 -0.57	205.3 -10.5 7.5	91.0 0.2161
PT 26	119.5 0.1761 44.8	-9.8 -9.9 0.0	18.3 126. 29.78		21.38 -55.56 0.25	450.9 -4.9 4.1	90.0 0.2203
PT 27	119.8 0.1765 45.0	-7.5 -7.6 0.0	18.3 127. 29.78		16.62 -44.92 0.31	389.3 -9.4 9.4	90.0 0.2203
PT 28	120.0 0.1770 45.3	-5.0 -5.1 0.0	18.3 131. 29.78		14.86 -29.03 -0.31	239.5 -7.9 11.3	89.0 0.2206
PT 29	119.6 0.1764 45.0	-2.5 -2.5 0.0	18.3 141. 29.78		14.00 -14.24 -0.49	111.6 -2.2 10.3	89.0 0.2207

	VKIS MTUN JPSF	ALFS,U ALFS,C PSI	J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RH0100
PT 30	119.8 0.1766 45.1	0.0 -0.0 0.0	18.3 143. 29.78	13.67 -1.11 -0.55	9.1 0.0 11.4	89.0 0.2207
PT 31	119.5 0.1762 44.9	2.5 2.5 0.0	18.3 148. 29.78	13.74 11.37 -0.76	-88.0 4.6 11.1	89.0 0.2207
PT 32	119.3 0.1759 44.7	5.0 5.1 0.0	18.3 148. 29.78	14.49 25.01 0.27	-199.8 8.9 12.2	89.0 0.2207
PT 33	119.4 0.1761 44.8	7.5 7.6 0.0	18.3 148. 29.78	15.69 39.04 -0.11	-312.2 7.0 14.6	89.0 0.2207
PT 34	119.5 0.1762 44.8	10.0 10.1 0.0	18.3 147. 29.78	17.01 52.51 -0.27	-435.9 4.9 13.9	90.0 0.2203
PT 35	119.5 0.1762 44.9	0.0 -0.0 0.0	18.3 0. 29.78	14.63 -2.00 0.78	12.8 12.0 11.6	89.0 0.2207
PT 36	6.0 0.0088 0.1	0.0 0.0 0.0	18.3 0. 29.78	161.54 -305.05 95.92	3111.2 2.6 1077.6	89.0 0.2237
RUN 12 PT 3	119.5 0.1784 46.0	10.0 10.1 0.0	344.2 170. 29.79	15.37 25.56 0.48	-288.0 17.1 22.0	76.0 0.2260
PT 4	119.6 0.1784 46.0	10.0 10.1 0.0	344.3 168. 29.79	18.30 51.39 0.57	-413.3 12.3 19.7	77.0 0.2256
PT 5	119.7 0.1783 45.9	7.5 7.6 0.0	344.2 166. 29.79	16.65 38.54 0.26	-285.8 12.8 22.1	78.0 0.2252

PT	6	7	8	9	10	11	12	13	14	15
VRIS	119.6	119.8	119.5	119.4	119.5	119.3	118.9	178.5	178.6	178.2
MTUN	0.1780	0.1782	0.1776	0.1775	0.1775	0.1771	0.1763	0.2638	0.2637	0.2628
QPSF	45.8	45.9	45.6	45.5	45.5	45.3	44.9	98.2	98.0	97.4
ALFS,U	5.0	2.5	0.0	-2.5	-5.0	-7.5	-9.8	-3.8	-2.5	0.0
ALFS,C	5.1	2.5	-0.0	-2.5	-5.1	-7.6	-10.0	-3.9	-2.5	-0.0
PSI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
J										
RPM	344.1	344.0	343.9	343.8	343.8	343.8	343.6	343.7	343.8	343.9
THRUST	166.	164.	161.	157.	149.	143.	137.	12.	14.	21.
BAR	29.79	29.79	29.79	29.79	29.79	29.79	29.79	29.79	29.79	29.79
DRAG/	15.40	14.75	14.63	15.04	15.92	17.79	21.81	15.14	14.73	14.27
LIFT/Q	25.57	12.08	-0.66	-14.16	-29.83	-45.22	-56.81	-23.98	-15.28	-3.43
SIDE/Q	0.72	0.89	1.01	1.01	1.80	2.03	2.03	0.77	0.45	0.45
PITCH/Q	-198.6	-93.0	7.3	114.9	242.0	387.4	469.4	206.0	138.5	21.1
YAW/Q	13.7	10.5	6.4	6.4	-0.5	-1.7	-2.3	-5.1	-2.1	-0.2
ROLL/Q	20.8	19.2	20.7	19.1	17.5	21.5	11.7	17.2	21.1	16.7
TEMP	79.0	80.0	80.0	81.0	82.0	82.0	83.0	91.0	92.0	93.0
RHU100	0.2248	0.2244	0.2244	0.2240	0.2236	0.2236	0.2232	0.2162	0.2158	0.2154

	VRTS MTUN QPSF	ALFS,U ALFS,C PSI	J THRUST RPM BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 16	178.3 0.2624 97.2	2.5 2.5 0.0	344.0 24. 29.80	14.42 9.76 0.11	-93.8 0.7 18.0	95.0 0.2148
PT 17	178.4 0.2622 97.0	5.0 5.1 0.0	344.1 23. 29.80	15.14 23.99 -0.13	-169.3 4.0 15.2	97.0 0.2140
PT 18	178.3 0.2620 96.9	7.5 7.6 0.0	344.1 24. 29.80	16.35 36.91 -0.34	-266.2 7.2 15.1	97.0 0.2140
PT 19	178.3 0.2618 96.7	10.0 10.1 0.0	344.2 23. 29.80	17.86 49.21 -0.50	-360.6 2.9 14.8	98.0 0.2136
PT 20	178.8 0.2618 96.7	0.0 -0.0 0.0	31.5 21. 29.80	13.55 -4.28 -0.47	30.4 -5.8 12.8	101.0 0.2125
PT 21	178.0 0.2614 96.4	10.0 10.1 0.0	31.5 20. 29.80	17.13 49.42 -1.67	-364.6 -0.7 14.2	102.0 0.2121
PT 22	178.9 0.2616 96.6	7.5 7.6 0.0	2.0 23. 29.80	15.65 36.54 -1.56	-270.1 0.5 13.3	103.0 0.2117
PT 23	178.7 0.2612 96.3	5.0 5.1 0.0	18.6 25. 29.80	14.34 23.04 -1.15	-160.9 -1.8 12.4	103.0 0.2118
PT 24	178.8 0.2611 96.2	2.5 2.5 0.0	18.6 25. 29.80	13.62 8.88 -0.48	-81.1 -3.0 12.3	104.0 0.2114
PT 25	179.0 0.2612 96.3	-2.5 -2.5 0.0	18.6 16. 29.80	13.96 -17.22 -0.43	149.1 -5.9 15.6	105.0 0.2110

	WTS ATUN Jp Sf	ALFS,U ALFS,C PSI	J THFUST RPM BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 26	178.8 0.2609 90.1	-3.8 -3.9 0.0	18.6 14. 29.80	14.45 -24.14 -0.43	209.2 -4.8 12.1	105.0 0.2110
PT 27	119.0 0.1733 43.5	-9.8 -9.9 0.0	18.6 135. 29.80	21.26 -54.81 0.64	430.4 -3.6 12.0	103.0 0.2154
PT 28	119.5 0.1741 43.9	-7.5 -7.6 0.0	18.6 139. 29.80	16.51 -44.85 0.78	376.6 -5.8 16.0	102.0 0.2158
PT 29	119.6 0.1745 44.0	-5.0 -5.1 0.0	18.6 144. 29.80	14.75 -29.74 0.16	243.5 -4.4 20.1	101.0 0.2162
PT 30	119.7 0.1747 44.1	-2.5 -2.5 0.0	18.6 147. 29.80	13.88 -15.99 -0.27	122.0 -2.1 19.7	101.0 0.2161
PT 31	119.6 0.1747 44.2	0.0 -0.0 0.0	18.6 149. 29.80	13.49 -2.26 -0.59	9.1 0.4 14.2	100.0 0.2165
PT 32	119.5 0.1746 44.1	2.5 2.5 0.0	18.6 153. 29.80	13.55 10.90 -1.04	-97.8 5.4 19.8	100.0 0.2165
PT 33	119.4 0.1746 44.1	5.0 5.1 0.0	18.6 156. 29.80	14.21 23.68 -1.00	-202.4 5.6 17.6	99.0 0.2169
PT 34	119.4 0.1745 44.1	7.5 7.6 0.0	18.6 157. 29.80	15.55 37.57 -1.48	-310.6 7.0 23.1	99.0 0.2169
PT 35	119.2 0.1743 43.9	10.0 10.1 0.0	18.6 157. 29.80	17.18 50.19 -1.14	-417.8 2.6 20.3	99.0 0.2169

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	VKTS ATUN WPSF	ALFS,U ALFS,C PSI	RPM J THRUST B	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RH0100
PT 36	119.4 0.1747 44.1	0.0 -0.0 0.0	18.6 0. 29.80	14.35 -2.72 -0.70	11.6 3.2 20.6	98.0 0.2173
RUN 15						
PT 3	119.1 0.1782 46.3	0.0 -0.0 0.0	344.7 164. 30.07	15.06 -4.10 1.08	5.2 1.2 8.4	73.0 0.2294
PT 4	119.7 0.1790 46.7	10.0 10.1 0.0	344.9 166. 30.07	18.79 49.16 0.83	-455.2 1.8 7.8	74.0 0.2290
PT 5	119.5 0.1785 46.5	7.5 7.6 0.0	344.9 164. 30.07	17.19 36.91 0.67	-315.6 9.5 5.2	75.0 0.2286
PT 6	119.1 0.1780 46.2	5.0 5.1 0.0	344.8 168. 30.07	15.87 22.08 0.45	-206.6 6.8 5.7	75.0 0.2286
PT 7	119.2 0.1779 46.2	2.5 2.5 0.0	344.7 165. 30.07	15.21 8.96 0.65	-106.8 6.3 6.1	76.0 0.2282
PT 8	119.2 0.1778 46.1	0.0 -0.0 0.0	344.6 162. 30.07	15.10 -4.33 0.82	8.1 4.7 6.4	77.0 0.2277
PT 9	119.2 0.1777 46.1	-2.5 -2.5 0.0	344.5 159. 30.07	15.50 -17.13 0.78	119.8 4.0 11.6	77.0 0.2277
PT 10	119.2 0.1775 46.0	-5.0 -5.1 0.0	344.4 151. 30.07	16.56 -31.13 0.89	220.3 6.4 8.5	78.0 0.2273
PT 11	119.2 0.1774 46.9	-7.5 -7.6 0.0	344.3 140. 30.07	18.09 -46.46 1.07	367.1 2.5 8.0	79.0 0.2269

PT	VKTS KTUN QPSF	ALFS, U ALFS, C PSI	J THKUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RH0100
PT 12	119.2 0.1774 +5.9	-9.8 -9.9 0.0	344.3 137. 30.08	22.56 -55.77 1.15	412.6 11.4 -4.2	79.0 0.2270
PT 13	178.5 0.2653 100.1	-3.8 -3.9 0.0	344.6 9. 30.08	15.81 -25.04 0.55	180.6 -3.5 11.4	85.0 0.2206
PT 14	178.4 0.2648 99.8	-2.5 -2.5 0.0	344.6 13. 30.08	15.34 -18.79 0.52	118.0 -1.5 13.5	86.0 0.2202
PT 15	178.0 0.2641 99.3	0.0 -0.0 0.0	344.8 22. 30.08	14.94 -6.24 0.24	3.6 -0.1 10.5	87.0 0.2199
PT 16	178.2 0.2641 99.3	2.5 2.5 0.0	344.9 24. 30.08	14.95 5.92 0.27	-99.7 4.3 6.8	88.0 0.2195
PT 17	178.3 0.2640 99.2	5.0 5.1 0.0	344.9 23. 30.08	15.65 21.63 -0.18	-179.5 3.7 7.4	89.0 0.2191
PT 18	178.4 0.2639 99.1	7.5 7.6 0.0	344.9 23. 30.07	16.84 35.96 -0.61	-297.5 5.0 2.0	90.0 0.2186
PT 19	178.3 0.2632 98.6	10.0 10.1 0.0	344.9 22. 30.07	18.33 47.85 -0.57	-389.1 2.5 8.4	92.0 0.2178
PT 20	178.4 0.2629 98.4	0.0 -0.0 0.0	18.2 23. 30.07	14.76 -7.66 0.92	24.4 2.7 9.3	94.0 0.2171
RUP: 17 PT 2	00.4 0.0906 12.1	-5.0 -5.1 0.0	343.4 249. 30.00	16.75 -24.78 -0.33	123.3 -19.0 28.5	68.0 0.2335

PT	VKTS MTUR PSF	ALFS,U ALFS,C PSI	J RPM THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 4	50.2 0.0904 12.1	-2.5 -2.5 0.0	343.5 254. 30.00	16.92 -7.69 0.08	15.9 2.2 27.9	68.0 0.2335
PT 5	50.1 0.0901 12.0	0.0 0.0 0.0	343.6 253. 30.00	16.74 5.41 -0.08	-114.5 0.5 24.0	68.0 0.2335
PT 6	50.1 0.0901 12.0	2.5 2.5 0.0	342.6 255. 30.00	16.42 18.14 -0.42	-174.0 0.4 25.1	69.0 0.2331
PT 7	50.0 0.0899 11.9	5.0 5.1 0.0	343.5 257. 30.00	17.09 30.95 -1.09	-253.7 0.0 29.8	70.0 0.2327
PT 8	50.0 0.0899 11.9	7.5 7.6 0.0	343.4 254. 30.00	18.06 44.10 -1.26	-344.3 5.9 22.4	70.0 0.2327
PT 9	59.6 0.0893 11.8	10.0 10.2 0.0	343.4 257. 30.00	20.35 60.96 -1.27	-114.0 11.1 17.4	70.0 0.2327
PT 10	50.0 0.1345 26.5	10.0 10.1 0.0	343.6 226. 30.00	20.98 53.82 -0.60	-444.1 5.4 9.1	74.0 0.2299
PT 11	59.9 0.1343 26.5	7.5 7.6 0.0	343.6 229. 30.00	18.74 40.81 -0.72	-321.1 5.2 5.2	74.0 0.2299
PT 12	50.0 0.1342 26.4	5.0 5.1 0.0	343.5 225. 30.00	18.41 25.59 0.68	-229.0 3.3 4.8	75.0 0.2295
PT 13	59.8 0.1340 26.4	2.5 2.5 0.0	343.5 223. 30.00	17.61 12.38 -0.08	-121.4 5.4 0.6	75.0 0.2295

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PT	VKTS ATUN PSF	ALFS,U ALFS,C PSI	J THRUST BAR	RPM	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RH0100
PT 14	90.2 0.1340 26.6	0.0 -0.0 0.0	343.4 223. 30.00		17.43 -1.13 0.64	-42.5 4.9 749.5	75.0 0.2294
PT 15	90.0 0.1338 26.3	-2.5 -2.5 0.0	343.3 214. 30.00		17.54 -12.81 0.42	69.2 -4.3 4410.1	78.0 0.2282
PT 16	89.9 0.1337 26.2	-5.0 -5.1 0.0	343.3 208. 29.99		18.20 -27.20 0.61	178.9 -8.7 11.5	79.0 0.2277
PT 17	119.2 0.1770 45.6	-9.8 -9.9 0.0	343.3 136. 29.99		23.51 -54.88 -0.02	392.3 -3.2 12.8	82.0 0.2251
PT 18	119.7 0.1777 45.9	-7.5 -7.6 0.0	343.3 137. 29.99		19.41 -43.73 0.52	312.8 -5.5 16.3	82.0 0.2250
PT 19	119.8 0.1777 45.9	-5.0 -5.1 0.0	343.4 144. 29.99		17.82 -29.22 0.48	180.9 -2.5 17.5	83.0 0.2246
PT 20	119.7 0.1776 45.9	-2.5 -2.5 0.0	343.4 146. 29.99		16.92 -15.36 0.57	77.3 1.3 16.6	83.0 0.2246
PT 21	119.5 0.1771 45.6	0.0 -0.0 0.0	343.4 154. 29.99		16.57 -3.50 0.53	-19.9 2.6 17.9	84.0 0.2242
PT 22	119.4 0.1769 45.6	2.5 2.5 0.0	343.5 157. 29.99		16.68 8.99 0.42	-115.7 6.6 139.0	84.0 0.2242
PT 23	119.3 0.1767 45.4	5.0 5.1 0.0	343.5 157. 29.99		17.39 22.61 0.24	-231.3 9.5 699.1	84.0 0.2243

	VKTS KTUN WPSF	ALFS,U ALFS,C PSI	J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/W YAW/Q ROLL/Q	TEMP RH0100
PT 24	119.4 0.1768 45.5	7.5 7.6 0.0	343.5 156. 29.99	18.64 36.90 -0.46	-344.7 14.8 18.9	85.0 0.2238
PT 25	119.3 0.1766 45.4	10.0 10.1 0.0	343.5 157. 29.99	20.27 48.86 -0.55	-496.5 14.1 16.2	85.0 0.2238
PT 26	119.2 0.1762 45.2	0.0 0.0 -15.0	343.3 155. 29.99	23.28 5.85 -40.76	-157.6 295.0 -144.1	86.0 0.2234
PT 27	119.3 0.1764 45.3	0.0 0.0 -12.5	343.3 157. 29.99	21.03 2.98 -33.18	-111.1 235.4 -107.1	86.0 0.2234
PT 28	119.3 0.1763 45.2	0.0 0.0 -10.0	343.3 155. 29.99	19.50 0.88 -26.25	-80.2 196.3 -82.2	87.0 0.2230
PT 29	119.4 0.1764 45.3	0.0 0.0 -7.5	343.3 157. 29.99	18.37 0.00 -19.89	-58.6 148.9 -56.9	87.0 0.2230
PT 30	119.6 0.1766 45.4	0.0 -0.0 -5.0	343.3 153. 29.99	17.53 -2.20 -12.44	-36.6 101.7 206.9	88.0 0.2226
PT 31	119.5 0.1764 45.3	0.0 -0.0 -2.5	343.3 154. 29.99	16.89 -2.98 -5.82	-26.0 53.0 -24.9	88.0 0.2226
PT 32	119.7 0.1767 45.4	0.0 -0.0 2.5	343.3 152. 29.99	16.77 -2.97 7.15	-31.7 -35.0 6.9	88.0 0.2226
PT 33	119.7 0.1765 45.3	0.0 -0.0 5.0	343.3 154. 29.99	17.23 -1.10 13.65	-55.7 -80.4 22.2	89.0 0.2222

	VKTS MTUN GPSF	ALFS,U ALFS,C PSI	J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHU100
PT 34	119.3 0.1767 45.4	0.0 0.0 7.5	343.2 151. 29.99	17.99 0.55 20.47	-84.7 -126.1 41.1	89.0 0.2222
PT 35	119.9 0.1767 45.4	0.0 0.0 10.0	343.4 150. 29.99	19.09 1.76 27.36	-101.4 -176.8 69.5	90.0 0.2218
PT 36	120.0 0.1768 45.5	0.0 0.0 12.5	343.4 150. 29.99	20.62 4.39 34.64	-146.1 -225.8 96.8	90.0 0.2218
PT 37	119.8 0.1765 45.3	0.0 0.0 14.0	343.3 150. 29.99	21.90 6.39 38.97	-176.0 -252.8 119.3	90.0 0.2218
PT 38	120.0 0.1768 45.5	0.0 -0.0 0.0	4.6 0. 29.99	17.46 -5.93 0.40	-15.2 -0.1 12.6	90.0 0.2218
RUN 18 PT 3	149.4 0.2230 71.5	10.0 10.1 0.0	344.9 107. 29.99	20.10 47.24 -0.06	-445.7 4.0 5.5	78.0 0.2249
PT 4	149.7 0.2228 71.4	7.5 7.6 0.0	344.7 109. 29.99	18.60 34.81 -0.32	-331.0 8.5 5.9	81.0 0.2236
PT 5	149.3 0.2220 70.9	5.0 5.1 0.0	344.6 113. 29.99	17.44 20.93 0.20	-210.7 4.8 5.4	82.0 0.2233
PT 6	149.5 0.2220 70.9	2.5 2.5 0.0	344.4 108. 29.99	16.87 7.53 0.34	-99.4 3.1 1.9	83.0 0.2229
PT 7	149.4 0.2219 70.8	0.0 -0.0 0.0	344.2 101. 29.99	16.76 -4.16 0.47	9.3 1.6 9.3	83.0 0.2229

	VKTS MTUN ↓PSF	ALFS,U ALFS,C PSI	J THRUST BAR	RPM	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP PH0100
PT 8	149.3 0.2217 10.7	-2.5 -2.5 0.0	344.1 93. 29.99		17.10 -17.31 0.89	93.0 -5.2 5.1	84.0 0.2225
PT 9	149.5 0.2217 10.7	-5.0 -5.1 0.0	344.1 87. 29.99		18.06 -30.13 0.44	205.7 -5.5 7.0	85.0 0.2220
PT 10	171.9 0.2629 98.2	-3.8 -3.9 0.0	344.0 10. 29.99		17.50 -25.10 0.82	154.7 -5.9 8.7	91.0 0.2177
PT 11	178.5 0.2633 98.4	-2.5 -2.5 0.0	344.0 15. 29.99		17.08 -18.77 0.63	94.1 -6.4 9.7	93.0 0.2169
PT 12	178.9 0.2636 98.7	0.0 -0.0 0.0	344.2 25. 29.99		16.68 -5.82 0.18	-11.1 -0.9 8.2	94.0 0.2165
PT 13	179.0 0.2633 98.4	2.5 2.5 0.0	344.2 24. 29.99		16.80 5.32 0.53	-115.5 -1.3 6.7	96.0 0.2157
PT 14	178.9 0.2629 98.2	5.0 5.0 0.0	344.3 25. 29.99		17.36 17.70 -0.32	-248.4 6.2 8.4	97.0 0.2153
PT 15	178.8 0.2625 97.9	7.5 7.6 0.0	344.3 29. 29.99		18.61 35.20 -0.64	-305.7 5.7 13.8	98.0 0.2150
PT 16	178.8 0.2623 97.7	10.0 10.1 0.0	344.3 25. 29.99		19.98 47.86 -0.21	-399.3 1.0 10.2	99.0 0.2146
PT 17	178.8 0.2614 97.1	10.0 10.1 0.0	14.1 24. 29.99		19.67 47.94 -1.41	-427.2 -5.1 11.9	103.0 0.2131

	WTS MTUN JPSF	ALFS,U ALFS,C PSI	J THRUST BAR	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RH0100
PT 18	173.2 0.2605 96.5	7.5 7.6 0.0	14.1 30. 29.99	18.46 34.81 -1.32	-321.4 -3.6 6.3	103.0 0.2131
PT 19	170.4 0.2606 96.5	5.0 5.0 0.0	14.1 28. 29.99	17.53 17.97 -0.83	-265.0 -4.7 5.6	104.0 0.2128
PT 20	177.7 0.2592 95.5	2.5 2.5 0.0	14.1 29. 29.99	16.96 4.29 -0.03	-124.6 -7.5 6.2	105.0 0.2125
PT 21	178.6 0.2604 96.4	0.0 -0.0 0.0	14.1 24. 29.99	16.95 -7.72 0.35	-10.0 -8.8 6.7	106.0 0.2120
PT 22	178.5 0.2602 96.2	-2.5 -2.6 0.0	14.1 15. 29.99	17.29 -19.26 0.61	88.6 -5.8 5.1	106.0 0.2120
PT 23	178.4 0.2599 96.0	-3.8 -3.9 0.0	14.1 8. 29.99	17.55 -24.59 0.53	138.9 -6.2 8.3	107.0 0.2117
PT 24	119.2 0.1735 43.8	-9.8 -9.9 0.0	14.1 136. 29.97	23.60 -54.13 0.91	378.7 -3.4 14.3	104.0 0.2163
PT 25	119.7 0.1742 44.2	-7.5 -7.6 0.0	14.1 141. 29.97	19.42 -43.49 1.34	300.1 -6.4 12.2	103.0 0.2166
PT 26	119.6 0.1743 44.2	-5.0 -5.1 0.0	14.1 144. 29.97	17.71 -30.85 1.22	179.1 -8.8 9.5	102.0 0.2170
PT 27	119.4 0.1742 44.2	-2.5 -2.5 0.0	14.1 153. 29.97	17.09 -17.54 1.00	96.0 -5.3 5.6	101.0 0.2174

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	VKTS MTUN QPSF	ALFS,U ALFS,C PSI	J THRUST BAR	RPM	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RHO100
PT 28	119.3 0.1742 44.2	0.0 -0.0 0.0	14.1 158. 29.97		16.77 -5.99 0.72	10.1 -3.4 4.1	100.0 0.2178
PT 29	119.4 0.1744 44.2	2.5 2.5 0.0	14.1 164. 29.97		16.74 6.67 0.36	-104.2 -1.9 3.7	100.0 0.2178
PT 30	119.2 0.1741 44.1	5.0 5.1 0.0	14.1 163. 29.97		17.42 21.03 -0.32	-230.3 -1.2 9.6	99.0 0.2182
PT 31	119.2 0.1742 44.2	7.5 7.6 0.0	14.1 167. 29.97		18.63 35.96 -1.22	-355.5 4.5 23.8	99.0 0.2182
PT 32	119.3 0.1745 44.3	10.0 10.1 0.0	14.1 167. 29.97		19.95 48.11 -1.08	-486.2 4.2 22.5	98.0 0.2186
PT 33	119.2 0.1744 44.2	0.0 -0.0 0.0	344.8 163. 29.97		16.91 -4.29 0.41	-0.7 6.4 3.5	98.0 0.2186
PT 34	118.9 0.1740 44.0	0.0 -0.0 0.0	344.4 0. 29.96		17.70 -5.10 0.82	-12.1 6.8 1.4	98.0 0.2185
PT 35	6.6 0.0097 0.1	0.0 0.0 0.0	4.3 151. 29.96		95.95 -358.87 215.43	1636.7 -2771.7 -4543.9	93.0 0.2235
PT 36	7.2 0.0105 0.2	0.0 0.0 0.0	4.3 593. 29.96		-350.61 -61.01 79.35	744.5 -1304.1 -2452.5	91.0 0.2243
PT 37	3.1 0.0120 0.2	0.0 0.0 0.0	4.3 1176. 29.96		-142.51 117.32 -4.69	-330.3 -2637.9 349.5	88.0 0.2255

	KT TUN QPSF	ALFS, J ALFS, C PSI	J THRUST BAR	RPM	DRAG/Q LIFT/Q SIDE/Q	PITCH/Q YAW/Q ROLL/Q	TEMP RH0100
PT 38	9.5 0.0139 0.3	0.0 0.0 0.0	4.3 1684. 29.96		-62.73 87.15 -62.78	-325.1 -3063.9 1352.7	89.0 0.2251
PT 39	12.6 0.0185 0.5	0.0 0.0 0.0	4.3 2230. 29.96		-42.97 68.88 -70.88	-501.1 -2367.2 34980.5	90.0 0.2247
PT 40	14.9 0.0218 0.7	0.0 0.0 0.0	4.3 2651. 29.96		16.36 49.66 -86.59	-474.4 -2346.2 1415.5	91.0 0.2242
PT 41	8.6 0.0127 0.2	0.0 0.0 0.0	4.3 132. 29.96		-77.88 -63.11 -8.42	807.7 314.3 256.6	91.0 0.2243
PT 42	7.7 0.0113 0.2	0.0 0.0 0.0	4.3 559. 29.96		-172.03 0.00 31.84	691.6 -67.9 -1207.3	90.0 0.2247
PT 43	8.6 0.0127 0.2	0.0 0.0 0.0	4.3 1124. 29.96		-277.53 63.11 -67.35	3157.7 -924.6 -764.4	90.0 0.2247
PT 44	9.5 0.0139 0.3	0.0 0.0 0.0	4.3 1689. 29.96		-302.25 52.29 -118.58	1279.0 -1700.5 -612.0	89.0 0.2251
PT 45	10.6 0.0156 0.4	0.0 0.0 0.0	4.3 2140. 29.96		-210.19 41.59 -172.00	789.8 -1570.9 34.8	89.0 0.2251
PT 46	14.0 0.0206 0.6	0.0 0.0 0.0	4.3 2643. 29.96		-18.97 47.54 -87.20	-183.6 -798.6 -589.5	89.0 0.2251

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DATA IN THE FOLLOWING GROUP OF POINTS SATISFIED THE FOLLOWING SEQUENCE OF CONSTRAINT CODES -

PT	V/VR MAT	CMEG#R TIP#	RPM# RPM#	VKTS MTUN QPSF ALFS,U ALFS,C PSI	BAR TEMP RH0100 L/DE L/D,R ANXL/R	LIFT ORAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,R	CLR/S,R CDR/S,R CYR/S,R CMY/S,R CMZ/S,R CMX/S,R	HP TORQ J THRUST CP/S CPD/S,R
RUN 21 PT 6	0.2489 0.6570 605.6 0.5261 321.3 93.5	89.3 0.1309 25.0 0.0 0.3 0.0	29.78 94.0 0.2200 1.75 2.48 -2.9	2697. 600. 14. 5327. -462. 1736.	2665. 137. 2. 7002. -401. 1400.	0.025602 0.001314 0.000924 0.021004 -0.000204 0.000640	258. 4211. 224. 0.002247 0.002574		
PT 7	0.2504 0.6535 602.8 0.5227 319.8 93.1	89.4 0.1309 25.0 5.0 5.8 0.0	29.78 96.0 0.2193 3.90 4.66 -7.2	8148. 1429. 93. 7373. 624. -1309.	7393. 928. 97. 15624. 599. -1997.	0.071956 0.009033 0.000948 0.111234 0.001088 -0.005280	180. 2963. 229. 0.001602 0.003864		
PT 8	0.2511 0.6550 604.9 0.5235 320.9 93.4	90.0 0.1314 25.2 5.0 6.0 0.0	29.78 98.0 0.2185 4.07 4.70 -6.5	10389. 1598. 69. 7116. 264. -2897.	9603. 1091. 74. 16738. 214. -3467.	0.003162 0.010579 0.000717 0.136574 0.000693 -0.005045	263. 4310. 229. 0.002223 0.004079		
PT 9	0.2507 0.6538 604.5 0.5227 320.7 93.3	89.8 0.1311 25.0 5.0 6.2 0.0	29.78 99.0 0.2181 3.81 4.19 -6.2	13233. 1849. 77. 12109. -224. -4619.	12414. 1341. 83. 23190. -269. -5223.	0.120793 0.013051 0.000906 0.174618 0.000504 -0.006396	448. 7330. 215. 0.003062 0.007234		
PT 10	0.2498 0.6546 607.3 0.5238 322.2 93.8	89.9 0.1308 25.0 5.0 6.4 0.0	29.78 102.0 0.2169 3.19 3.38 -5.3	15158. 1835. 15. 13927. -483. -5066.	14317. 1327. 21. 26860. -583. -6276.	0.139755 0.012863 0.000208 0.190100 -0.000146 -0.004302	803. 13085. 215. 0.007045 0.010258		

	V/OR	VKTS	BAR	LIFT	LIFT,R	CLR/S,R	HP
	WAT	MTUN	TEMP	DRAG	DRAG,R	CDR/S,R	TCRQ
	CMEG#P	QPSF	PHO100	SIDE	SIDE,R	CVR/S,R	J THRUST
	TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CWV/S,R	CP/S
	RPV	ALFS,C	L/D,P	YAW	YAW,R	CMZ/S,R	CPQ/S,R
	RPM%	PSI	ANXL/R	ROLL	ROLL,R	CMX/S,R	
PT 11	0.2485	89.8	29.78	8746.	7655.	0.073627	103.
	0.6564	0.1306	103.0	1370.	1340.	0.012891	1673.
	610.2	24.9	0.2165	48.	60.	0.000579	220.
	0.5257	7.5	3.90	3769.	14479.	0.144598	0.000894
	323.7	8.3	4.47	448.	380.	0.000782	0.004097
	94.2	0.0	-9.9	-552.	-975.	-0.093967	
PT 12	0.2490	90.0	29.78	8756.	7661.	0.073642	101.
	0.6568	0.1309	103.0	1872.	1340.	0.012878	1630.
	610.3	25.0	0.2165	47.	50.	0.000569	217.
	0.5259	7.5	3.92	3814.	14568.	0.144594	0.000871
	323.8	8.3	4.50	455.	384.	0.000773	0.004077
	94.2	0.0	-9.9	-730.	-1148.	-0.003113	
PT 13	0.2489	90.0	29.78	10456.	9340.	0.089785	118.
	0.6568	0.1309	103.0	2124.	1599.	0.015282	1914.
	610.3	25.0	0.2165	38.	51.	0.000487	220.
	0.5259	7.5	4.10	4831.	16362.	0.173484	0.001022
	323.8	8.5	4.63	869.	789.	0.000908	0.004825
	94.2	0.0	-9.7	-900.	-1271.	-0.002818	
PT 14	0.2499	90.1	29.78	13383.	12230.	0.118578	239.
	0.6545	0.1309	104.0	2508.	1971.	0.019107	3884.
	608.3	25.0	0.2161	37.	50.	0.000489	217.
	0.5236	7.5	3.97	6189.	19300.	0.222691	0.002092
	322.7	8.8	4.32	1520.	1440.	0.091264	0.006868
	93.9	0.0	-9.2	-1963.	-2323.	-0.003399	
PT 15	0.2490	90.0	29.78	15772.	14598.	0.140575	440.
	0.6561	0.1308	104.0	2802.	2261.	0.021790	7145.
	610.2	25.0	0.2161	106.	120.	0.001157	219.
	0.5253	7.5	3.59	8352.	22844.	0.259676	0.003825
	323.7	9.0	3.78	2071.	2066.	0.002261	0.009252
	94.2	0.0	-8.8	-942.	-1617.	-0.005947	

PT	V/VR MAT CMEG#R TIPW PPH RPM%	VKTS MTUN QPSF ALFS,U ALFS,C PSI	BAR TFMP RHO100 L/DE L/D,R ANXL/R	LIFT DRAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,R	CLR/S,R CDR/S,R CYR/S,R CMY/S,R CMZ/S,R CMX/S,R	HP TORQ J THRUST CP/S CPD/S,R
PT 16	0.2424 0.6715 627.9 0.5405 333.1 97.0	90.2 0.1310 25.0 10.0 10.9 0.0	29.78 104.0 0.2161 3.69 4.04 -13.1	8972. 2317. -8. 1734. 105. 88.	7533. 1751. 10. 14879. 7. -1.	0.068552 0.015932 0.000094 0.166465 0.000251 0.004112	31. 406. 224. 0.000251 0.004112
PT 17	0.2264 0.7169 679.0 0.5845 360.2 104.8	91.1 0.1323 25.5 10.0 11.1 0.0	29.78 104.0 0.2161 3.83 4.12 -13.0	11800. 2960. 188. 7988. 396. 5038.	10301. 2380. 207. 22245. 545. 4060.	0.080180 0.018521 0.001609 0.194973 0.002150 -0.005237	32. 482. 213. 0.000208 0.004402
PT 18	0.2497 0.6550 608.8 0.5241 323.0 94.0	90.1 0.1309 25.0 5.0 5.8 0.0	29.78 104.0 0.2161 3.98 4.75 -6.9	8438. 1424. 64. 6119. -3. -198.	7651. 923. 68. 14638. -53. -740.	0.074042 0.008931 0.000662 0.111838 0.000506 -0.003334	190. 3901. 214. 0.001662 0.003892
PT 19	0.3002 0.6825 609.8 0.5240 323.5 94.2	108.5 0.1576 36.0 5.0 5.5 0.0	29.78 105.0 0.2150 3.97 5.32 -7.3	8115. 1615. 41. 2968. 614. -951.	7154. 917. 39. 13246. 356. -1567.	0.069378 0.008995 0.000379 0.107164 0.000497 -0.002524	142. 3311. 213. 0.001245 0.003016
RUN 23 PT 7	0.2902 0.6778 592.1 0.5232 314.1 91.4	105.0 0.1566 35.8 0.0 0.2 0.0	29.96 76.0 0.2281 1.60 2.75 -4.8	2527. 258. 34. 5576. -554. 334.	2576. 215. 10. 6946. -597. -261.	0.024990 0.002090 0.000099 0.024646 -0.000280 -0.000584	232. 3884. 222. 0.002093 0.002719

PT	Q	V/OP MAT	W/OP MAT	VKTS WTUN	BAR TEMP	LIFT ORAG	LIFT ORAG	LIFT ORAG	CLR/S,P	HP TOPQ
PT	Q	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT
PT	Q	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT	W/OP MAT
PT	Q	0.3010	0.1572	105.8	29.96	8499.	8478.	0.982535	440.	
		0.6795	36.1	0.2263	80.0	820.	172.	0.001671	7344.	
		593.2	0.0	3.91	0.2263	69.	46.	0.000450	222.	
		0.5223	0.6	5.55	3.91	15181.	19897.	0.053569	0.002972	
		314.7	0.0	-1.2	5.55	-185.	-239.	0.000058	0.004475	
		01.6	0.0	-1.2	-1.2	-1969.	-2748.	-0.003504		
PT	Q	0.2585	105.6	29.96	12862.	11846.	0.114356	476.		
		0.6810	35.8	83.0	1819.	1120.	0.010816	7807.		
		597.3	5.0	0.2251	54.	54.	0.000517	210.		
		0.5245	5.8	3.91	8766.	22478.	0.157873	0.004235		
		316.9	0.0	4.57	591.	343.	0.000601	0.007463		
		92.2	0.0	-5.4	-2569.	-3229.	-0.004022			
PT	10	0.2099	106.1	29.96	15031.	13984.	0.135245	753.		
		0.6811	36.0	84.0	1905.	1199.	0.011601	12476.		
		597.3	5.0	0.2247	131.	131.	0.001268	211.		
		0.5240	6.0	3.56	12255.	27671.	0.181423	0.006703		
		316.9	0.0	3.98	479.	288.	0.001178	0.010181		
		92.2	0.0	-4.9	-1216.	-2244.	-0.006828			
PT	11	0.3002	106.4	29.96	15984.	14926.	0.145052	1016.		
		0.6797	36.0	88.0	1967.	1162.	0.011295	16814.		
		598.1	5.0	0.2231	290.	290.	0.002823	222.		
		0.5227	6.0	3.21	12867.	29335.	0.188787	0.009078		
		317.3	0.0	3.49	39.	-16.	0.002268	0.012469		
		92.4	0.0	-4.5	1570.	-200.	-0.012619			
PT	12	0.3002	106.8	29.96	11977.	9601.	0.093217	119.		
		0.6800	36.0	92.0	2358.	1614.	0.015672	1956.		
		600.5	7.5	0.2214	91.	101.	0.000981	223.		
		0.5230	8.2	4.07	4740.	19746.	0.180742	0.001055		
		318.6	0.0	4.86	654.	427.	0.001211	0.005760		
		92.7	0.0	-9.5	-1452.	-2220.	-0.005507			

	V/DP MAT CMEG#R TIPM PPW PPM2	VKTS MTUN QPSF ALFS,U ALFS,C PSI	RAP TFMP PHN100 L/DE L/D,R ANXL/R	LIFT DRAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,R	CLR/S,R CDR/S,R CYR/S,R CMV/S,R CMZ/S,R CMX/S,R	HP TORQ J THRUST CP/S CPD/S,R
PT 13	0.3003 0.6807 601.7 0.5235 319.2 92.0	107.0 0.1572 36.1 7.5 8.5 0.0	29.96 93.0 0.2210 2.99 3.16 -6.8	15076. 2356. 364. 5691. -4106. 3668.	13546. 1605. 375. 25339. -4046. 1636.	0.131272 0.015558 0.003635 0.221195 0.001454 -0.015090	882. 14517. 219. 0.007816 0.012488
PT 14	0.2989 0.6809 604.1 0.5242 320.5 93.3	107.0 0.1567 35.8 7.5 8.4 0.0	29.96 96.0 0.2198 3.47 3.81 -7.6	13620. 2365. 122. 3961. -311. -1857.	12116. 1621. 133. 21804. -501. -2757.	0.117088 0.015664 0.001282 0.205606 0.001012 -0.007114	512. 8303. 220. 0.004506 0.009187
76							
PT 15	0.2095 0.6842 607.3 0.5265 322.2 93.8	107.8 0.1577 36.3 2.5 3.1 0.0	29.96 97.0 0.2194 4.06 5.42 -4.2	9355. 1324. 151. 12149. -391. 1037.	8850. 654. 138. 20008. -510. -145.	0.084788 0.006269 0.001322 0.093852 0.000538 -0.005979	324. 5274. 211. 0.002807 0.004684
PT 16	0.3562 0.7365 607.3 0.5275 322.2 93.8	142.6 0.2090 63.0 2.5 2.8 0.0	29.96 97.0 0.2176 3.32 5.32 -5.2	8676. 1431. 162. 9050. 282. 1762.	8084. 736. 149. 18717. 232. 714.	0.078107 0.007109 0.001436 0.093549 0.001004 -0.006924	343. 5586. 166. 0.002008 0.005815
PT 17	0.3992 0.7316 604.7 0.5229 320.8 93.4	143.0 0.2087 62.8 2.5 2.9 0.0	29.96 102.0 0.2157 3.94 5.87 -3.9	11802. 1861. 144. 11351. -69. -1205.	11173. 767. 132. 23174. -138. -2176.	0.103872 0.007539 0.001295 0.117563 0.000718 -0.006971	400. 8166. 133. 0.004461 0.007471

PT	1A	V/OP	VKTS	RAP	LIFT	LIFT,R	CLP/S,R	HP
		"AT	MTUN	TFMP	DRAG	ORAG,R	CDR/S,P	TORQ
		MEG#R	OPSF	RPM100	SIDE	SIDE,R	CYR/S,R	J THPUST
		TIPM	ALFS,U	L/DE	PITCH	PITCH,R	CYV/S,R	CP/S
		AP4	ALFS,C	L/D,K	YAW	YAW,K	CMZ/S,R	CP/S,R
		OPM	PSI	ANX1/P	ROLL	ROLL,R	CMX/S,R	
PT	1A	0.3901	142.2	29.96	10945.	9438.	0.092908	390.
		0.7312	0.2096	104.0	1821.	729.	0.097173	6380.
		605.4	62.7	0.2149	128.	115.	0.091134	133.
		0.5226	2.5	3.71	9417.	20113.	0.103684	0.003489
		321.2	2.9	5.84	107.	31.	0.000711	0.006352
		93.5	0.0	-4.4	-670.	-1562.	-0.005014	
PT	24	0.4026	140.9	29.96	9201.	7796.	0.073550	204.
		0.7244	0.2079	90.0	2142.	1007.	0.010142	4919.
		590.9	62.4	0.2204	358.	358.	0.003704	175.
		0.5165	5.0	3.26	5362.	21861.	0.125837	0.002754
		213.5	5.3	4.63	125.	153.	0.003073	0.006836
		91.2	0.0	-7.4	8933.	6799.	-0.012612	
PT	7	0.3940	140.9	29.95	13076.	11632.	0.113114	360.
		0.7329	0.2071	94.0	2463.	1332.	0.012953	5898.
		603.8	61.9	0.2188	303.	314.	0.003052	173.
		0.5258	5.0	3.97	7328.	25881.	0.165388	0.003186
		320.3	5.5	5.38	55.	32.	0.002479	0.008289
		93.2	0.0	-6.5	3217.	1326.	-0.012812	
PT	9	0.3960	141.2	29.95	14223.	12773.	0.125296	458.
		0.7308	0.2073	95.0	2484.	1351.	0.013251	7542.
		601.7	62.0	0.2184	292.	303.	0.002974	174.
		0.5235	5.0	4.02	7065.	26639.	0.181223	0.004110
		319.2	5.5	5.30	242.	208.	0.002512	0.009358
		92.9	0.0	-6.0	1213.	-629.	-0.013526	
PT	9	0.4004	142.4	29.95	11426.	9129.	0.090290	101.
		0.7302	0.2088	97.0	2855.	1640.	0.016221	1673.
		600.4	62.8	0.2175	-145.	-117.	-0.001152	174.
		0.5214	7.5	3.70	-4600.	19149.	0.180383	0.000019
		318.5	7.9	4.88	1387.	888.	-0.000663	0.007414
		92.7	0.0	-10.2	-9957.	-9963.	-0.000412	

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	V/OP MAT CMEG#R TIPV RPM RPMZ	VKTS MTUN QPSF ALFS,U ALFS,C PSI	BAR TEMP RHO100 L/DE L/O,R ANXL/R	LIFT DRAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,R	CLR/S CDR/S, CVR/S, CMV/S,P CMZ/S,R CMX/S,P	HP TORQ J THRUST EP/S CPC/S,R
PT 10	0.3963 0.7363 607.1 0.5273 322.1 93.8	142.5 0.2090 63.0 7.5 7.9 0.0	29.95 97.0 0.2175 3.74 4.92 -10.1	11645. 2887. -150. -4173. 1372. -9043.	9341. 1670. -121. 19720. 867. -9026.	0.090341 0.016148 -0.001174 0.180147 -0.000707 0.000309	101. 1645. 172. 0.000884 0.007283
PT 11	0.4489 0.7559 603.8 0.5217 320.3 93.2	160.6 0.2342 78.5 2.5 2.8 0.0	29.95 104.0 0.2137 3.15 5.45 -5.1	9185. 2118. 382. 11501. -497. 122.	8576. 766. 369. 22764. -536. -1927.	0.084656 0.007622 0.003669 0.102459 0.001950 -0.017441	392. 6422. 110. 0.003551 0.006973
PT 12	0.4471 0.7580 606.2 0.5238 321.6 93.6	160.6 0.2342 78.5 2.5 2.8 0.0	29.95 104.0 0.2137 3.15 5.42 -5.1	9254. 2112. 415. 11578. -537. 344.	8575. 761. 402. 22914. -405. -1842.	0.084655 0.007512 0.003965 0.101892 0.002206 -0.013708	405. 6606. 110. 0.003623 0.006982
RUN 25 PT 5	0.2594 0.6812 592.8 0.5242 315.0 91.7	105.3 0.1570 36.0 7.5 8.3 0.0	29.97 77.0 0.2277 4.15 4.86 -8.9	12595. 2474. 234. 3808. 205. 1542.	11099. 1728. 244. 20018. 130. 113.	0.107211 0.016695 0.002361 0.199839 0.002420 -0.010313	180. 3706. 232. 0.001613 0.006611
PT 6	0.3017 0.6820 592.0 0.5233 315.1 91.7	106.2 0.1581 36.5 7.5 8.0 0.0	29.97 77.0 0.2272 3.67 4.52 -10.7	8337. 2055. -78. 5211. 514. -226.	6879. 1306. -69. 18660. 94. -236.	0.066537 0.012620 -0.000664 0.139519 -0.000612 0.002780	71. 1177. 229. 0.000632 0.004443

PT	7	V/CR MAT C/FG#P TIP# RPM REV#	VKTS HTUN QPSF ALFS,U ALFS,C PSI	BAP TEMP RHND100 L/DE L/D,P ANXL/P	LIFT OPAG SIDE PITCH YAW ROLL	LIFT,R ORAG,P SIDE,R PITCH,R YAW,R ROLL,R	CLR/S,R COR/S,R CYR/S,R CWV/S,R CWZ/S,R CWX/S,R	HD TTPO J THPUST CP/S CPO/S,R
PT	7	0.2996 0.6757 590.0 0.5190 313.0 91.1	104.7 0.1558 35.5 7.5 8.3 0.0	29.97 79.0 0.2269 3.88 4.45 -8.7	12252. 2385. 96. 5598. 2348. -132.	10778. 1650. 106. 21544. 2141. -900.	0.105815 0.016198 0.001043 0.197010 0.002210 -0.005074	248. 4154. 238. 0.002266 0.007119
PT	8	0.2998 0.6763 591.0 0.5211 314.0 91.4	104.8 0.1557 35.4 7.5 8.4 0.0	29.97 80.0 0.2265 4.17 4.81 -8.7	13356. 2557. 117. 2929. 2790. 760.	11869. 1821. 128. 19420. 2606. -101.	0.116004 0.017798 0.001247 0.213838 0.002661 -0.005532	208. 3473. 239. 0.001886 0.007203
PT	9	0.2946 0.6813 597.7 0.5262 317.1 92.3	104.3 0.1550 35.1 7.5 8.6 0.0	29.97 80.0 0.2265 4.37 4.95 -9.2	15880. 3051. 26. 1664. 3530. -1361.	14370. 2317. 37. 18657. 3258. -2281.	0.137698 0.022200 0.000356 0.256517 0.002090 -0.002780	187. 3105. 239. 0.001653 0.008193
RUN 28 PT	6	0.2496 0.6561 596.8 0.5251 316.6 92.2	88.3 0.1311 25.2 2.5 3.3 0.0	29.92 80.0 0.2268 3.96 4.70 -3.5	8936. 1008. -156. 10653. 2525. 905.	8500. 527. -160. 17694. 2372. 1367.	0.081592 0.005057 -0.001531 0.084634 0.000327 0.007564	338. 5614. 221. 0.002994 0.004256
PT	7	0.2514 0.6534 595.1 0.5221 315.7 91.9	88.6 0.1313 25.2 2.5 3.6 0.0	29.92 83.0 0.2256 3.90 4.59 -3.3	11689. 1136. -141. 10922. 3609. 711.	11219. 652. -144. 19383. 3458. 1103.	0.109912 0.006326 -0.001396 0.108714 0.001010 0.006826	488. 8123. 219. 0.004381 0.005972

HP
ICRQ
J THRUST
CP/S
CPQ/S,R
CWX/S,R

CLR/S,R
CDR/S,R
CVR/S,R
CXY/S,R
CZ/S,R
CWX/S,R

LIFT,R
DRAG,R
SIDE,R
PITCH,R
YAW,R
ROLL,R

LIFT
DRAG
SIDE
PITCH
YAW
ROLL

RAR
TFMP
RHU100
L/DE
L/D,R
ANXI/R

VKTS
MTUN
QPSF
ALFS,U
ALFS,C
PSI

V/CR
WAT
CWC#R
TIP#
FPM
RPM

1042.
17253.
231.
0.009279
0.011631

0.149922
0.009380
-0.000314
0.156479
0.003673
-0.000126

15486.
970.
-32.
33134.
7186.
-2838.

16010.
1456.
-31.
23041.
7275.
-2712.

29.92
87.0
0.2239
3.03
3.23
-3.6

88.8
0.1309
25.1
2.5
4.0
0.0

0.2505
0.6538
598.1
0.5228
317.3
92.4

PT 8

551.
9116.
196.
0.004862
0.006989

0.093200
0.009521
-0.003985
0.126589
-0.000049
0.015183

9708.
888.
-415.
17258.
5933.
-4651.

10495.
1335.
-420.
6589.
6401.
-6376.

29.93
84.0
0.2252
3.07
3.33
-5.2

88.6
0.1311
25.2
5.0
6.0
0.0

0.2497
0.6560
598.3
0.5249
317.7
92.5

PUN 29
PT 5

530.
8747.
109.
0.004665
0.007984

0.099471
0.013326
-0.003217
0.173966
0.000427
0.013782

10362.
1288.
-335.
17155.
6827.
-657.

11494.
1925.
-348.
3481.
7315.
-2084.

29.93
85.0
0.2248
2.97
3.10
-7.6

88.4
0.1307
25.0
7.5
8.6
0.0

0.2490
0.6557
598.4
0.5249
318.0
92.6

PT 6

511.
8407.
107.
0.004458
0.009430

0.108137
0.019974
-0.003828
0.235502
-0.000168
0.015457

11329.
2093.
-401.
18538.
8270.
-2218.

12824.
2666.
-420.
1692.
8880.
-4038.

29.93
86.0
0.2244
2.82
2.85
-10.5

88.7
0.1311
25.2
10.0
11.2
0.0

0.2489
0.6575
601.7
0.5264
319.2
92.9

PT 7

562.
9357.
249.
0.005012
0.008490

0.133203
0.013886
-0.002130
0.186945
0.001469
0.009428

13815.
1440.
-221.
20007.
5949.
-1889.

14655.
1053.
-227.
8130.
6258.
-2715.

29.94
79.0
0.2274
3.44
3.93
-6.0

88.2
0.1312
25.2
5.0
6.4
0.0

0.2594
0.6549
594.7
0.5237
315.5
91.8

PT 9

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PT	V/OR	VKTS	BAP	LIFT	LIFT,R	CLR/S,R	HP
	MAT	WTUR	TEMP	DRAG	DRAG,R	CDR/S,R	TTPO
	CMIG#P	QPSF	RH100	SIDE	SIDE,R	CVR/S,R	J THRUST
	TIPW	ALFS,U	L/DE	PITCH	PITCH,R	C4V/S,R	CP/S
	RPM	ALFS,C	L/O,R	YAW	YAW,P	CMZ/S,R	CPN/S,R
	PPM2	PSI	AMXL/F	POLL	ROLL,R	C4X/S,R	
PT 9	0.2490	88.1	29.94	12889.	12074.	0.115752	520.
	0.6560	0.1308	80.0	1722.	1214.	0.011635	8790.
	597.0	25.1	0.2270	-333.	-327.	-0.003138	248.
	0.5252	5.0	3.50	7142.	18505.	0.160857	0.004681
	316.7	6.2	3.80	6640.	6244.	0.000795	0.007578
	92.2	0.0	-5.7	-1191.	128.	0.013976	
PT 10	0.2480	87.9	29.94	14129.	12966.	0.123751	493.
	0.6560	0.1305	80.0	2403.	1865.	0.017798	8166.
	598.3	25.0	0.2270	-394.	-380.	-0.003630	251.
	0.5264	7.5	3.34	1695.	16154.	0.219600	0.004330
	317.4	8.8	3.51	7413.	6878.	0.000019	0.008743
	92.4	0.0	-8.2	-2069.	-422.	0.015726	
PT 11	0.2507	88.4	29.94	17909.	16692.	0.161634	599.
	0.6536	0.1310	82.0	3163.	2616.	0.025334	9966.
	595.1	25.2	0.2261	-11.	3.	0.000034	752.
	0.5226	7.5	3.33	8250.	23599.	0.298585	0.005362
	315.7	0.2	3.46	7033.	6903.	0.003747	0.011714
	91.9	0.0	-8.9	-504.	-628.	-0.000485	
RUN 30	0.2508	88.0	29.99	14071.	13237.	0.127927	525.
PT 6	0.6538	0.1311	76.0	1899.	1387.	0.013401	8790.
	591.9	25.2	0.2290	-323.	-317.	-0.003064	280.
	0.5227	5.0	3.66	7930.	19615.	0.180103	0.004719
	314.0	6.3	3.97	6350.	5960.	0.000728	0.008081
	91.4	0.0	-6.0	-1703.	-428.	0.013353	
PT 7	0.2501	88.2	29.99	11588.	10786.	0.103501	509.
	0.6557	0.1312	78.0	1571.	1061.	0.010180	8464.
	595.1	25.3	0.2282	-478.	-473.	-0.004537	280.
	0.5245	5.0	3.36	5855.	16750.	0.142845	0.004512
	315.7	6.1	3.67	6362.	5842.	-0.000545	0.007058
	91.9	0.0	-5.6	-550.	1449.	0.020385	

PT	3	V/CR WAT CMEG*P TTPM RPM RPM*	VKTS MTUN QPSF ALFS,U ALFS,C PSI	BAP TFMP RHG100 L/DE L/D,P ANXL/R	LIFT DRAG SIDE PITCH YAW ROLL	LIFT,R DRAG,R SIDE,R PITCH,R YAW,R ROLL,R	CLP/S,R CDR/S,R CYR/S,P CMV/S,R CMZ/S,R CMX/S,R	HP THRQ J THRUST CP/S CPN/S,P
PT	3	0.4062 0.7294 589.6 0.5187 212.3 91.0	141.9 C.2107 64.1 2.5 2.9 0.0	30.00 83.0 0.2234 4.02 6.18 -3.5	11685. 1788. -316. 11062. 5537. -3913.	11050. 672. -329. 23340. 5221. -2698.	0.110322 0.006710 -0.003282 0.113927 0.000386 0.013152	486. 8165. 312. 0.004529 0.007255
PT	9	0.4027 0.7330 595.6 0.5226 316.0 92.0	142.1 0.2104 63.9 2.5 2.9 0.0	30.00 86.0 0.2222 3.82 5.59 -3.3	12095. 1778. -453. 8604. 6306. -4701.	11456. 665. -471. 21208. 5937. -2817.	0.112681 0.005538 -0.004628 0.113217 0.000410 0.010118	504. 10027. 310. 0.005485 0.008118

SECTION B

Tabulated Control and Loads Data

RTN	THETA	URCB MN	URRPL MN	URCB MN	LKUD US	URRPL OS	URSB MN	LVF VTAC
DT	AL	URN1 MN	URRPL MN	URN1 OS	LKUD US	URRPL OS	URSB OS	HST VTAC
MAT	BT	URN2 MN	URRPL MN	URN2 OS	LKUD US	URRPL OS	GR VTAC	#1J VTAC
ALPH	THETAP	URN3 MN	URRPL MN	URN3 OS	LKUD US	URRPL OS	GR LTAC	#2J VTAC
V/CP	ALP	URN4 MN	URRPL MN	URN4 OS	LKUD US	URRPL OS	GR LNAC	LAS LTAC
VKTS	BT	URN5 MN	URRPL MN	URN5 OS	#2W US	URRPL OS		
21	5.17	-8094.	-137.	326.	1197.	264.	2123.	1.170
6	-1.77	-6154.	-32.	1650.	1790.	232.	1477.	0.222
0.6570	1.16	-19642.	-82.	2082.	1205.	268.	0.261	0.290
0.2	1.95	-2955.	-164.	946.	920.	160.	0.235	0.312
0.2450	-0.25	-617.	-215.	2846.	302.	168.	0.286	0.299
0.22	1.06	90.	-109.	14.	15.	160.		
21	3.27	31630.	-195.	3711.	1970.	335.	2770.	1.435
7	-2.00	-3980.	297.	1914.	2641.	284.	2365.	0.423
0.6525	-0.41	-656.	-144.	2.	1058.	344.	0.443	0.299
5.2	-0.11	-1022.	-103.	887.	960.	204.	0.282	0.463
0.2534	-1.64	119.	-145.	2370.	328.	215.	0.546	0.226
0.24	1.04	62.	-48.	15.	14.	237.		
21	10.14	40885.	-136.	1025.	2670.	398.	2124.	1.621
7	-3.04	-1977.	89.	3256.	1362.	350.	2829.	0.373
0.6550	-1.02	-657.	-162.	2.	1201.	413.	0.450	0.319
6.0	-1.50	-608.	-82.	1045.	791.	228.	0.314	0.482
0.2511	-0.10	842.	-115.	1464.	+53.	226.	0.554	0.195
0.220	3.90	107.	-18.	29.	28.	218.		
21	12.86	40962.	-190.	262.	3775.	549.	3613.	1.928
6	-4.65	1407.	-174.	5904.	3491.	437.	4671.	0.666
0.6520	-1.24	-657.	-105.	2.	4042.	513.	0.662	0.487
6.2	-1.92	420.	-10.	2061.	1002.	258.	0.464	0.569
0.2527	-0.65	1569.	-44.	2205.	+49.	275.	1.089	0.304
0.22	5.42	178.	56.	29.	26.	297.		
21	15.35	40722.	-169.	1382.	3228.	605.	4320.	2.756
10	-5.57	2142.	-424.	5324.	3141.	1201.	4817.	0.620
0.6524	-1.20	-656.	-270.	4.	3496.	657.	0.776	0.945
6.4	-0.41	2077.	5.	2195.	2100.	489.	0.454	0.657
0.2508	0.10	-221.	-2.	2276.	767.	498.	0.810	0.404
0.22	1.21	206.	76.	83.	90.	442.		

Q	PT	THRTA	USC3	LPCH	URPPL	UPCH	LRUP	URRPL	URSB	LVF
01	01	7.62	44532	-5235	-297	4730	1950	259	3261	1.862
02	02	-2.33	-2673	-4748	-433	1487	1045	520	2475	0.508
03	03	0.22	-656	-2841	-523	3	1128	421	0.373	0.325
04	04	0.75	-1153	-1771	-154	910	916	200	0.252	0.275
05	05	-0.45	612	-575	-161	2178	+13	203	0.501	0.244
06	06	2.22	24	62	-37	12	15	218		
07	07	7.65	-10402	-3411	-393	17977	1912	354	3276	1.860
08	08	-2.60	-2655	-4766	-428	1549	1922	584	2513	0.515
09	09	0.77	-657	-2350	-589	2	1174	413	0.365	0.333
10	10	0.75	-2211	-1797	-153	905	662	202	0.209	0.315
11	11	-0.42	612	-574	-159	2045	+28	201	0.496	0.252
12	12	3.47	24	63	-37	13	15	216		
13	13	3.04	-9945	-5297	-204	15504	2210	444	3568	1.686
14	14	-3.37	-953	-3037	-394	1037	1459	722	2717	0.611
15	15	0.22	-455	-1602	-572	2	841	472	0.421	0.279
16	16	0.70	-347	-936	-132	516	432	216	0.263	0.379
17	17	-0.26	1350	-460	-134	2882	375	217	0.621	0.226
18	18	0.85	42	61	-14	10	10	235		
19	19	11.46	40841	-5742	-183	910	5058	537	4114	1.799
20	20	-4.45	1906	600	-256	2577	5563	771	2592	0.522
21	21	-0.72	-654	1009	-519	2	2169	586	0.605	0.356
22	22	0.26	1089	837	-92	1222	1114	271	0.272	0.406
23	23	-0.21	2467	-222	-92	2660	376	276	0.521	0.219
24	24	+0.94	72	110	32	22	21	294		
25	25	13.54	29000	-6061	-70	14792	3724	594	4450	1.752
26	26	-5.25	2712	3508	-457	5751	5721	3002	2681	0.798
27	27	-0.03	-655	2159	-456	1	5632	632	0.711	0.420
28	28	-0.01	1071	2293	-34	2384	1995	317	0.299	0.404
29	29	-0.29	3204	-22	-37	2502	352	349	1.244	0.258
30	30	5.71	172	139	89	13	14	365		

QUN	THETA	URC3 MN	LRCB MN	URRPL MN	URC3 OS	LRCB OS	URRPL OS	URSB MN	LVF VTAC
PT	A1	URN1 MN	LRN1 MN	UPYPL MN	UPN1 OS	LRN1 OS	URYPL OS	URSB OS	HST VTAC
MAT	B1	UPN2 MN	LRN2 MN	URBPL MN	UPN2 OS	LRN2 OS	URBPL OS	GB VTAC	#1J VTAC
ALPH	THETAP	URN3 MN	LRN3 MN	LPRPL MN	UPN3 OS	LRN3 OS	LRRPL OS	GB LTAC	#2J VTAC
V/CR	AIP	UPN6 MN	LRN6 MN	LRPPL MN	UPN6 OS	LRN6 OS	LRPPL OS	GB LNAC	LAS LTAC
VKTS	TIP	#1C MN	#2Q MN	LRGPL MN	#1Q OS	#2Q OS	LRGPL OS		
21	6.21	23691.	-5609.	84.	5359.	1579.	424.	3506.	1.276
16	-2.79	-1697.	-6936.	302.	1845.	2079.	481.	3227.	0.500
0.6715	0.96	-657.	-4374.	-477.	3.	1339.	508.	0.435	0.500
10.0	1.72	-785.	-2821.	-187.	1176.	822.	244.	0.345	0.420
0.2224	-0.42	902.	-717.	-194.	3737.	397.	258.	0.637	0.305
60.2	2.65	18.	6.	-53.	13.	30.	222.		
21	7.42	49536.	-4679.	82.	1836.	2255.	509.	3913.	1.730
17	-2.63	-2054.	-4522.	314.	2690.	+640.	627.	6972.	0.768
0.7100	1.02	-656.	-2576.	-470.	26.	2698.	574.	0.737	0.550
11.1	0.74	-992.	-1539.	-175.	1566.	1021.	254.	0.236	0.517
0.2264	-0.46	702.	-555.	-181.	2913.	375.	261.	0.878	0.311
9.1	2.69	18.	6.	-44.	171.	169.	251.		
21	8.56	-1941.	-4560.	76.	12907.	1815.	369.	3575.	1.647
10	-3.05	-2449.	-5009.	298.	1438.	1341.	430.	2269.	0.440
0.6550	0.31	-657.	-2991.	-416.	2.	783.	425.	0.373	0.271
5.8	0.72	-1114.	-1896.	-132.	526.	422.	195.	0.257	0.282
0.2407	-0.20	654.	-591.	-136.	2646.	332.	209.	0.415	0.256
02.1	3.23	70.	92.	-2.	11.	23.	200.		
21	7.04	22301.	-5046.	177.	4842.	1602.	453.	3568.	1.662
10	-2.07	-2064.	-4407.	272.	2008.	2352.	441.	1508.	0.406
0.6475	0.43	-654.	-2303.	-410.	1.	1376.	421.	0.371	0.423
5.5	0.69	-1428.	-2135.	-148.	1346.	609.	226.	0.405	0.360
0.2002	-0.25	265.	-637.	-153.	2616.	340.	240.	0.504	0.315
109.5	3.55	40.	61.	-12.	10.	9.	218.		
21	6.91	-50116.	-1009.	-153.	0.	820.	256.	1927.	1.613
7	-1.60	-6122.	-10793.	-157.	1412.	1991.	299.	2213.	0.330
0.6704	1.15	-2441.	-7252.	-111.	1116.	1260.	258.	0.278	0.350
0.0	2.14	-2162.	-4345.	-240.	942.	841.	181.	0.320	0.330
0.2002	-0.20	-2124.	-054.	-253.	2771.	371.	196.	0.197	0.301
105.0	1.93	95.	90.	-173.	8.	8.	176.		

UNIT	THETA	URCB MN	LRCB MN	URRPL MN	URCB US	LRCB US	LRPL OS	URSB MN	LVF VTAC
PT	AT	URN1 MN	LRN1 MN	URRPL MN	UPN1 CS	LRN1 US	URPL OS	URSB CS	FST VTAC
WAT	EL	URN2 MN	LRN2 MN	URRPL MN	UPN2 CS	LRN2 US	URPL OS	URSB CS	#1J VTAC
ALPH	THETAP	URN3 MN	LRN3 MN	URRPL MN	UPN3 CS	LRN3 US	URPL OS	URSB CS	#2J VTAC
V/CP	ALP	URN4 MN	LRN4 MN	URRPL MN	UPN4 CS	LRN4 US	URPL OS	URSB CS	LAS VTAC
VKTS	ALP	#12 MN	#22 MN	LRGPL MN	#1J CS	#24 US	LRGPL CS	URSB CS	LAS VTAC
23	12.74	-23907.	-23924.	-142.	26552.	2734.	338.	4091.	2.910
2	-3.21	-1527.	-2429.	-113.	2777.	2328.	411.	3856.	0.382
0.6705	-0.22	307.	-1246.	-96.	1587.	1546.	382.	0.493	0.430
0.6	-0.36	-527.	-669.	-147.	881.	701.	218.	0.517	0.608
0.2010	-0.22	-1102.	-271.	-153.	2300.	582.	200.	0.618	0.414
105.8	6.01	130.	185.	-73.	25.	21.	230.		
22	14.01	-22715.	-4327.	-109.	26147.	5215.	473.	4815.	1.855
9	-4.29	1619.	1360.	-63.	3909.	3411.	558.	2571.	0.593
0.6910	-0.45	993.	1422.	-70.	2416.	2105.	525.	0.772	0.613
5.8	-0.52	970.	1153.	-89.	1445.	1334.	310.	0.632	0.722
0.2925	-0.40	-65.	-135.	-88.	4099.	003.	297.	0.789	0.524
105.6	3.04	201.	185.	-8.	15.	10.	310.		
22	15.89	-13360.	-4640.	-46.	22800.	0317.	667.	5279.	3.407
10	-5.54	2757.	3992.	10.	6622.	5599.	752.	4724.	0.842
0.6911	-0.71	4528.	3313.	-12.	4245.	5569.	654.	0.995	0.916
6.0	-0.80	2043.	2424.	5.	2515.	2202.	535.	0.851	0.897
0.2958	-0.21	751.	26.	3.	3571.	758.	463.	0.870	0.571
106.1	8.63	294.	225.	96.	28.	28.	467.		
23	16.94	-13521.	-4139.	-140.	22962.	7640.	899.	5775.	3.940
11	-6.33	4585.	5557.	12.	8097.	7250.	851.	2609.	1.048
0.6797	-0.60	5112.	4588.	-65.	5161.	4836.	781.	1.020	0.934
6.0	-0.63	2487.	3236.	82.	3129.	5110.	554.	1.194	1.089
0.2007	0.02	1062.	140.	113.	4129.	700.	663.	1.486	0.706
106.4	3.42	409.	426.	196.	56.	01.	610.		
23	10.01	-24764.	-5028.	-481.	28344.	4504.	488.	5000.	2.502
12	-3.20	-1851.	-257.	-251.	2360.	5101.	486.	4310.	0.800
0.6800	-1.24	620.	427.	-412.	1318.	2339.	529.	0.795	0.556
8.2	-0.69	-709.	404.	-119.	896.	1878.	305.	0.620	0.612
0.3002	-0.31	-1626.	-249.	-72.	3973.	778.	314.	1.052	0.447
106.9	6.24	25.	58.	31.	18.	14.	284.		

ROW PT	THETA A1	UPCB MN URN1 MN	LRCB MN LRN1 MN	URRPL MN URYPL MN	URCB OS URN1 OS	LRCB US LRN1 US	URRPL OS URYPL OS	URSB MN URSB OS	LVF VTAC HST VTAC
23	15.06	-27698.	-3816.	-408.	29289.	10523.	575.	6002.	3.290
12	-4.82	1751.	5436.	-152.	5957.	7004.	669.	5571.	0.963
0.6807	-1.10	3239.	4492.	-368.	4060.	4065.	614.	1.010	0.949
3.5	-1.52	1144.	3139.	178.	2804.	3277.	825.	1.265	0.936
0.3002	-0.77	-12.	38.	244.	5684.	878.	796.	0.804	0.792
107.0	10.22	355.	313.	313.	38.	38.	727.		
23	12.23	-19815.	-4732.	-459.	27880.	7255.	580.	5973.	2.378
.4	-5.05	1534.	1857.	-166.	3398.	4428.	669.	3345.	1.035
0.6309	-1.03	2076.	2005.	-471.	1827.	3097.	495.	0.953	0.518
3.4	-0.27	1028.	1467.	-20.	1401.	2259.	480.	0.670	0.626
0.2999	0.03	-230.	-122.	58.	5465.	1045.	511.	0.972	0.536
107.0	8.80	176.	232.	126.	27.	33.	406.		
23	11.00	-46197.	-4365.	-502.	18599.	2484.	447.	5547.	2.114
15	-0.91	-2274.	-1934.	-277.	1892.	1943.	420.	4022.	0.415
0.6342	-0.17	481.	-661.	-427.	1272.	1057.	426.	0.583	0.410
3.1	0.10	-762.	-210.	-154.	940.	830.	224.	0.599	0.613
0.2205	-0.11	-1462.	-216.	-72.	3399.	594.	232.	0.511	0.474
107.3	5.63	107.	155.	26.	34.	40.	228.		
23	11.54	-53112.	-4262.	-605.	41.	5034.	397.	5620.	3.512
16	-3.15	-2037.	-2670.	-315.	4284.	4522.	445.	3941.	0.778
0.7245	-0.51	-109.	-1171.	-672.	2640.	2658.	406.	0.630	0.584
2.8	-0.07	-1169.	-674.	-131.	1878.	1852.	234.	0.984	0.684
0.2962	-0.22	-1861.	-287.	-92.	5897.	1057.	250.	0.643	0.764
147.6	7.64	92.	142.	-13.	16.	23.	281.		
23	17.03	-41123.	-4023.	-600.	24429.	4795.	408.	6135.	3.928
17	-4.50	-7.	690.	-287.	7328.	8845.	523.	4909.	0.607
0.7316	-0.07	2047.	1242.	-666.	4700.	4422.	561.	0.632	0.613
2.0	-0.13	359.	589.	-117.	2854.	2750.	208.	0.845	0.574
0.3002	-0.22	-705.	-166.	-15.	4526.	902.	323.	0.552	0.705
147.0	0.10	176.	226.	60.	36.	37.	332.		

FILE	THEYA	JRCS MN	LECB MN	UPRPL MN	UPCB GS	LKND US	UPRPL OS	JRSB MN	LVF VTAC
PT	AT	UPN1 MN	LEP1 MN	UPYPL MN	URN1 US	LKND US	URYPL OS	URSB CS	FST VTAC
WAT	BT	UPN2 MN	LEP2 MN	UPRPL MN	URN2 CS	LKND US	UFBLP OS	GB VTAC	#1J VTAC
ALPH	CTCTAD	UPN3 MN	LEP3 MN	LPDPL MN	URN3 CS	LKND US	LRPL OS	GB LTAC	#2J VTAC
W/CP	ATP	UPN4 MN	LEP4 MN	LRPL MN	URN6 CS	LKND US	LRVPL OS	GB LNAC	LAS LTAC
WXTS	PLP	712 WA	720 MN	LPDPL MN	#16 CS	#24 US	LRGPL OS		
22	17.73	-47325.	-4104.	-632.	20537.	4209.	389.	6031.	3.664
19	-3.53	-1571.	-1215.	-311.	5720.	5081.	516.	4767.	0.710
0.7212	-0.60	975.	-167.	-707.	2615.	2198.	456.	0.7728	0.629
2.9	-0.14	-283.	22.	-158.	2183.	1900.	264.	0.9556	0.574
0.3907	-0.34	-1239.	-290.	-50.	5140.	1010.	261.	0.567	0.727
143.2	3.65	132.	167.	37.	19.	25.	277.		
24	11.45	-4761.	-4592.	-304.	2395.	6450.	449.	1482.	3.863
6	-3.30	-4555.	-406.	-171.	6151.	6047.	462.	6763.	0.932
0.7244	-1.05	-1254.	47.	-157.	4425.	4194.	451.	0.756	0.765
5.2	-1.14	-2096.	191.	-46.	3199.	2905.	404.	1.229	0.616
0.4026	-2.41	-2474.	-311.	-71.	7607.	1155.	364.	0.999	0.903
140.3	3.43	79.	123.	5.	34.	39.	397.		
24	13.15	-7192.	-4959.	-305.	14162.	4938.	411.	2184.	4.115
7	-4.52	212.	1587.	-124.	6916.	8994.	500.	5850.	0.503
0.7226	-1.11	2175.	1464.	-169.	4292.	5996.	507.	0.641	0.573
5.5	-0.80	251.	1175.	-66.	2477.	3745.	346.	0.951	0.631
0.3340	0.96	-396.	-190.	-71.	4440.	923.	350.	0.712	0.722
140.0	0.71	125.	142.	-2.	41.	36.	376.		
24	14.17	-47.	-4664.	-335.	16135.	5725.	454.	2405.	4.553
9	-5.13	1451.	2973.	-137.	9048.	8023.	548.	4901.	0.632
0.7208	-1.05	2971.	2419.	-207.	5766.	5730.	525.	0.758	0.536
5.5	-0.52	808.	1823.	-8.	3421.	3598.	369.	0.912	0.621
0.3960	0.12	-497.	-123.	-14.	4453.	815.	392.	0.742	0.673
141.2	9.27	128.	213.	63.	31.	30.	421.		
24	9.85	-9523.	-5059.	-422.	10759.	4680.	603.	2022.	4.515
9	-2.61	-1031.	-1827.	-163.	6652.	1595.	715.	5789.	0.500
0.7202	-2.07	1135.	-1009.	-300.	4076.	5433.	635.	0.967	0.620
7.0	-0.72	-468.	-510.	-123.	2407.	3939.	283.	1.078	0.850
0.4094	1.21	-1621.	-405.	-138.	3300.	1220.	333.	0.860	0.661
142.4	7.49	8.	19.	-52.	12.	17.	350.		

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REF	OT	THETA	URCB MN	LRCB MA	URRPL MN	URCB OS	LKCB OS	URRPL OS	URSB MN	LVE VTAC
24	9.87	-10.55	-5153.	-416.	15282.	4335.	601.	2031.	4.544	
10	-4.10	-1021.	-1509.	-162.	6415.	7532.	714.	5525.	0.510	
0.7762	-2.01	1227.	-1024.	-302.	3886.	5485.	636.	0.909	0.576	
7.0	-0.72	-456.	-517.	-134.	2270.	3987.	268.	1.116	0.809	
0.3063	1.25	-1553.	-408.	-139.	3236.	1224.	328.	0.891	0.729	
142.5	7.25	9.	25.	-50.	8.	15.	332.			
24	12.03	-3232.	-4049.	-564.	27581.	5062.	535.	2424.	5.772	
17	-2.67	-40293.	56.	-279.	1481.	8003.	635.	5412.	0.887	
0.7555	-2.93	-1599.	466.	-530.	3747.	5277.	680.	0.670	0.618	
2.0	-2.22	-2224.	504.	-90.	2230.	3275.	282.	0.991	0.685	
0.4486	0.04	-2913.	-272.	-86.	3697.	1017.	391.	0.717	0.695	
160.6	7.72	117.	195.	21.	22.	35.	459.			
24	12.04	-30516.	-4047.	-574.	28771.	5343.	569.	2412.	5.866	
12	-2.61	-14554.	-136.	-223.	2938.	7050.	693.	4671.	0.914	
0.7590	-2.97	-1227.	260.	-537.	2860.	4940.	667.	0.901	0.646	
2.2	-2.90	-2210.	376.	-93.	2284.	2998.	383.	1.025	0.649	
0.4471	-0.07	-2365.	-287.	-34.	2656.	1055.	388.	0.727	0.687	
140.6	7.94	127.	179.	18.	31.	30.	407.			
24	11.63	-5037.	-5242.	-246.	2479.	4201.	519.	1523.	3.091	
5	-4.27	-140.	2042.	-183.	3455.	3794.	539.	2914.	0.599	
0.6337	-0.65	1671.	1725.	-175.	1972.	2305.	542.	0.643	0.482	
9.2	-1.33	-71.	1338.	-9.	1212.	1567.	275.	0.521	0.517	
0.7704	-0.10	-642.	-155.	-40.	3868.	010.	287.	0.904	0.410	
105.3	5.40	58.	80.	-5.	12.	24.	292.			
25	7.77	-5263.	-4569.	-235.	2061.	4637.	421.	1074.	1.316	
6	-1.93	-251.	-7024.	-156.	4577.	2004.	545.	6190.	0.435	
0.6920	1.75	1558.	-4716.	-170.	3240.	4003.	485.	0.474	0.462	
9.0	2.44	-164.	-3115.	-162.	2217.	1595.	257.	0.567	0.395	
0.3017	0.07	-1074.	-767.	-123.	4238.	024.	252.	0.926	0.385	
106.2	4.57	14.	40.	-166.	10.	11.	253.			

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RTN PT QTH	4AT V/OK VCTS	URCB MN URN1 MN #1Q MN	LCB MN LKN1 MN #2Q MN	URCB OS URN1 OS #1Q OS	LCB OS LKN1 OS #2Q OS	GB VTAC GB LTAC	GB LNAC LAS LTAC	LVF VTAC HST VTAC	#1J VTAC #2J VTAC
28 6 3.3	0.6561 0.2496 88.3	4795. 2773. 126.	4165. -6798. 164.	2745. 5731. 29.	2212. 7534. 38.	0.366 0.635	0.608 0.209	2.362 0.342	0.358 0.361
28 7 3.6	0.6534 0.2514 88.6	4716. 4451. 182.	4250. -2677. 235.	3487. 8136. 35.	3076. 9156. 34.	0.448 0.686	0.785 0.197	2.110 0.348	0.376 0.423
28 8 4.0	0.6538 0.2505 88.8	3937. 7517. 432.	4808. 3462. 453.	6793. 11101. 50.	4927. 10641. 66.	1.128 0.914	1.470 0.448	3.930 0.924	0.810 0.786
29 5 6.0	0.6560 0.2497 88.6	4659. 6090. 219.	4168. -7602. 249.	5280. 6329. 71.	2012. 4949. 84.	0.645 0.686	0.889 0.311	0.781 0.564	0.492 0.418
29 6 8.6	0.6557 0.2490 88.4	4662. 6128. 209.	4477. -6063. 246.	6400. 6058. 51.	1946. 5322. 52.	0.677 0.724	0.813 0.390	1.435 0.464	0.336 0.358
29 7 11.2	0.6575 0.2489 88.7	4751. 7003. 205.	4766. -5131. 226.	7089. 6945. 28.	1988. 5202. 30.	0.630 0.498	0.862 0.381	1.599 0.692	0.470 0.389
29 8 6.6	0.6549 0.2504 88.1	4698. 7070. 211.	4509. 58. 266.	4579. 10490. 24.	3906. 9934. 24.	0.415 0.664	0.799 0.210	1.751 0.513	0.301 0.440
29 9 8.2	0.6560 0.2490 88.1	4809. 6821. 217.	4368. -3490. 233.	4642. 5121. 29.	3512. 5877. 22.	0.394 0.868	1.018 0.247	1.811 0.573	0.318 0.483
29 10 8.7	0.6569 0.2480 87.9	5045. 7511. 261.	4707. -2358. 219.	5552. 10024. 73.	3541. 9837. 75.	0.645 0.679	1.022 0.317	1.726 0.601	0.325 0.510
29 11 8.2	0.6530 0.2507 88.4	5014. 7992. 255.	5612. 5213. 256.	5033. 12473. 53.	5514. 11678. 55.	0.800 0.744	1.205 0.171	3.267 0.847	0.317 0.559

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SECTION C

Detailed Loads Data

PRECEDING PAGE BLANK NOT FILMED

RUN 21 PCINT 6 CMEG#R = 605.6 ALFS,C = 3.3 CLR/S,R = 0.02560 CMV/S,R = 0.0210
 VKTS = 89.3 CP/S = 0.002247 CUR/S,R = 0.00131 CMA/S,R = 0.0006
 V/CR = 0.249 RHJ100 = 0.2200

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-6155.6		0.0		-2955.2		-617.3	
1	439.9	-703.3	0.0	0.0	466.0	-665.2	1223.2	-1832.5
2	321.5	-674.3	0.0	0.0	158.7	-247.5	101.8	-235.0
3	203.9	38.6	0.0	0.0	50.5	27.6	-184.4	189.5
4	367.1	-171.7	0.0	0.0	123.7	-22.6	-350.5	245.8
5	23.0	-18.6	0.0	0.0	17.0	-37.6	-39.1	32.4
6	3.4	-80.7	0.0	0.0	-0.7	-37.3	24.5	54.0
7	19.5	-87.9	0.0	0.0	-22.2	-25.5	-40.4	15.1
8	-32.1	48.2	0.0	0.0	7.7	1.0	30.5	-23.2
9	-118.2	138.4	0.0	0.0	-2.8	1.2	71.8	-93.8
10	-21.9	-53.1	0.0	0.0	-9.1	12.5	26.6	22.1

UPPER ROTOR

PITCH LINK LOAD

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN
0	0.0		2123.2	
1	0.0	0.0	-1186.0	-183.9
2	0.0	0.0	-352.2	-112.4
3	0.0	0.0	-8.0	-44.6
4	0.0	0.0	-196.7	97.3
5	0.0	0.0	-197.2	40.7
6	0.0	0.0	21.6	18.6
7	0.0	0.0	45.0	72.4
8	0.0	0.0	51.0	-57.3
9	0.0	0.0	19.7	37.0
10	0.0	0.0	-15.9	29.5

RUN 21 POINT 6
 VKTS = 89.3 UMEG#R = 605.6 ALFS,C = 0.3 CLR/S,R = 0.02530 CMY/S,R = 0.0210
 V/OP = 0.249 RHO100 = 0.2200 CP/S = 0.002247 CDR/S,R = 0.00131 CMX/S,R = 0.00006

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.5R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-11268.2		-7645.3		-4983.3		-943.6	
1	-489.2	527.4	-230.4	524.4	-79.4	510.1	91.2	260.3
2	213.9	813.7	229.8	518.6	119.5	333.2	38.5	57.8
3	159.4	-61.4	97.2	-70.7	62.7	-34.4	28.7	-10.5
4	290.4	-136.9	140.4	-160.3	82.0	-64.2	-47.7	15.1
5	-271.3	-43.7	-166.5	43.0	-91.2	3.6	29.5	0.5
6	-140.3	313.2	12.3	199.8	-16.2	95.6	7.1	-32.0
7	193.2	142.9	104.4	69.7	26.6	56.6	-12.3	-0.2
8	1.7	16.3	9.2	-4.5	5.7	-10.6	-3.6	-4.7
9	-63.1	53.3	10.9	29.6	19.1	-2.6	4.0	-7.2
10	5.0	19.4	6.1	12.9	-1.9	4.7	0.2	-0.0

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	LOWER ROTOR PITCH LINK LOAD	
	COS	SIN
0	-4512.5	
1	7.6	-510.2
2	-30.2	-216.8
3	-17.8	-9.3
4	-38.3	45.1
5	12.4	-15.3
6	-22.0	-2.0
7	4.3	685.5
8	-21.1	0.4
9	4.2	-10.0
10	-1.3	-0.5

FUN 21	PCINT 6	89.3	OMEG#R =	50.0	ALFS,C =	0.3	CLR/S,R = 0.02560	CMY/S,R = 0.0210
VKTS =	0.249	RHJ100 =	2.0	CP/S =	0.002247	CDR/S,R = 0.00131	CMX/S,R = 0.0006	
V/OR =								
	UPPER ROTOR BLADE						UR PITCH	UPPER ROTOR
	.1R						LINK LOAD	SHAFT STRESS
PSI								
0.00	-4950.	-2166.	247.	0.	-288.	305.		
11.25	-5485.	-2515.	59.	0.	-202.	492.		
22.50	-6321.	-2884.	81.	0.	-141.	686.		
33.75	-7229.	-3184.	16.	0.	-69.	1063.		
45.00	-7418.	-3410.	-720.	0.	37.	1406.		
56.25	-7284.	-3626.	-1656.	0.	133.	1374.		
67.50	-7516.	-3748.	-2160.	0.	148.	1352.		
78.75	-7397.	-3716.	-2631.	0.	78.	1728.		
90.00	-6658.	-3676.	-3189.	0.	23.	2190.		
101.25	-6493.	-3702.	-3128.	0.	31.	2579.		
112.50	-6945.	-3687.	-2562.	0.	15.	3028.		
123.75	-6807.	-3614.	-2289.	0.	-37.	3208.		
135.00	-6286.	-3543.	-2276.	0.	-34.	2905.		
146.25	-6200.	-3455.	-2194.	0.	-6.	2665.		
157.50	-6119.	-3351.	-2214.	0.	-25.	2831.		
168.75	-5857.	-3259.	-2208.	0.	-43.	3015.		
180.00	-6086.	-3184.	-1815.	0.	-31.	2958.		
191.25	-6603.	-3186.	-1341.	0.	-66.	2880.		
202.50	-6781.	-3269.	-1101.	0.	-158.	2973.		
213.75	-6685.	-3268.	-771.	0.	-244.	3131.		
225.00	-6986.	-3128.	-286.	0.	-299.	3133.		
236.25	-6549.	-2970.	-51.	0.	-300.	2993.		
247.50	-5861.	-2791.	14.	0.	-251.	2930.		
258.75	-5626.	-2525.	374.	0.	-226.	2843.		
270.00	-5589.	-2269.	1008.	0.	-260.	2458.		
281.25	-5296.	-2127.	1552.	0.	-314.	2031.		
292.50	-5134.	-2102.	1973.	0.	-363.	1992.		
303.75	-5418.	-2172.	2355.	0.	-365.	2152.		
315.00	-5531.	-2204.	2337.	0.	-286.	2340.		
326.25	-4949.	-2052.	1635.	0.	-225.	1513.		
337.50	-4311.	-1870.	786.	0.	-277.	786.		
348.75	-4412.	-1911.	402.	0.	-334.	305.		

PUN 21 VKTS = 85.3 PUNT 6 POINT 6
 V/CR = 0.249 OMEG*KR = 605.6 ALFS,C = 0.3
 RHO100 = 0.2200 CP/S = 0.002247
 CMY/S,R = 0.0210
 CMX/S,R = 0.0006

LOWER ROTOR BLADE NORMAL BENDING MUMENT				LR EDGEWISE BENDING .1R		LR PITCH LINK LOAD	
PSI	.1R	.2R	.3R	.6R			
300.00	-13483.	-9130.	-6092.	-1167.	-4402.	-281.	
288.75	-13616.	-9392.	-6174.	-1188.	-4270.	-332.	
277.50	-12610.	-8953.	-5821.	-1250.	-3484.	-354.	
266.25	-10998.	-8018.	-5337.	-1327.	-3429.	-288.	
255.00	-10279.	-7348.	-5073.	-1323.	-4366.	-201.	
243.75	-10833.	-7374.	-5066.	-1198.	-4973.	-195.	
232.50	-11338.	-7654.	-5121.	-1049.	-4436.	-237.	
221.25	-10952.	-7617.	-5074.	-993.	-3714.	-252.	
210.00	-10309.	-7314.	-4915.	-1029.	-4013.	-228.	
198.75	-10088.	-7082.	-4770.	-1086.	-4925.	-172.	
187.50	-10232.	-7030.	-4727.	-1108.	-5097.	-98.	
176.25	-10541.	-7095.	-4737.	-1073.	-4353.	-54.	
165.00	-10906.	-7262.	-4782.	-999.	-3967.	-43.	
153.75	-11218.	-7530.	-4913.	-929.	-4624.	-34.	
142.50	-11475.	-7766.	-5028.	-875.	-5294.	-41.	
131.25	-11636.	-7800.	-4965.	-814.	-4897.	-67.	
120.00	-11486.	-7667.	-4809.	-761.	-4124.	-72.	
108.75	-11023.	-7497.	-4720.	-759.	-4355.	-67.	
97.50	-10650.	-7294.	-4624.	-784.	-5376.	-81.	
86.25	-10617.	-7082.	-4446.	-763.	-5687.	-94.	
75.00	-10662.	-6983.	-4334.	-702.	-4926.	-96.	
63.75	-10602.	-7005.	-4385.	-659.	-4431.	-108.	
52.50	-10714.	-7106.	-4486.	-636.	-5018.	-107.	
41.25	-10995.	-7269.	-4541.	-617.	-5671.	-87.	
30.00	-10910.	-7309.	-4547.	-647.	-5237.	-82.	
18.75	-10548.	-7126.	-4550.	-730.	-4292.	-97.	
7.50	-10789.	-7136.	-4671.	-792.	-4176.	-129.	
356.25	-11680.	-7637.	-4969.	-816.	-4850.	-204.	
345.00	-12230.	-8156.	-5263.	-876.	-4983.	-288.	
333.75	-12164.	-8238.	-5371.	-996.	-4092.	-312.	
322.50	-12218.	-8219.	-5439.	-1104.	-3301.	-284.	
311.25	-12781.	-8562.	-5716.	-1154.	-3648.	-264.	

CAY/S,R = 0.1112
 CAX/S,R = -0.0053

CLK/S,R = 0.07196
 CLX/S,R = 0.00903

ALFS,C = 5.8
 CP/S = 0.001002

602.8
 C.2193

PCINT 7
 29.4
 0.0250

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2F		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-3939.4	1060.7	0.0	0.0	-1933.4	214.7	117.9	-1092.7
1	722.0	-492.3	0.0	0.0	583.6	-194.2	1270.8	-312.9
2	445.1	115.5	0.0	0.0	172.7	58.4	-12.6	142.5
3	65.4	-278.0	0.0	0.0	-10.4	-79.2	-256.2	330.2
4	328.7	239.2	0.0	0.0	100.4	64.9	-348.8	-214.1
5	-312.4	-279.0	0.0	0.0	-63.9	-98.7	204.3	192.5
6	61.7	158.2	0.0	0.0	9.6	17.2	35.9	-17.2
7	8.2	-54.1	0.0	0.0	50.6	8.2	-29.2	18.3
8	-43.8	-15.0	0.0	0.0	-4.7	0.8	27.7	61.6
9	120.5	-91.1	0.0	0.0	1.5	20.6	-85.0	69.3
10	-60.9		0.0	0.0	-11.2		11.9	

UPPER ROTOR SHAFT STRESS

UPPER ROTOR PITCH LINK LOAD

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR SHAFT STRESS		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR EDGEWISE BENDING MOMENT .1R	
	COS	SIN	COS	SIN	COS	SIN
0	2769.9	1313.7	-195.3	186.3	0.0	0.0
1	-2620.8	-43.3	-94.6	17.6	0.0	0.0
2	-579.3	-63.6	-30.1	-31.4	0.0	0.0
3	218.6	89.0	-43.9	-33.1	0.0	0.0
4	-27.3	-245.9	4.7	-42.0	0.0	0.0
5	1.2	95.2	65.3	26.6	0.0	0.0
6	8.9	-118.3	-14.3	57.8	0.0	0.0
7	-162.9	96.1	1.7	-2.9	0.0	0.0
8	14.1	-39.2	-6.4	5.6	0.0	0.0
9	23.4	117.2	-12.9	28.4	0.0	0.0
10	-78.5		4.9		0.0	

409 21 POINT 7
 VKTS = 89.4
 V/CR = 0.250

602.8
 0.2193
 0.001602
 5.8
 0.00903

CHY/S,R = 0.1412
 CMX/S,R = -0.0053

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	CCS	SIN	CCS	SIN	COS	SIN
0	-3460.9	-174.3	-2004.3	192.8	-1152.1	334.3	-471.7	285.0
1	-1969.3	260.2	-1283.2	115.3	-778.1	46.8	10.1	-18.2
2	152.9	-124.5	79.7	-79.0	-11.7	-43.9	-70.3	-16.6
3	37.0	127.7	11.4	7.3	12.0	18.0	19.5	-19.0
4	286.5	7.0	184.5	23.9	86.9	16.4	-58.5	-2.9
5	-87.7	403.3	-42.2	195.7	-30.2	98.4	13.7	-45.6
6	41.9	9.8	134.3	-99.5	43.6	-37.0	-9.4	-6.7
7	107.8	-11.7	92.4	4.0	28.8	-12.6	-27.3	-3.5
8	-85.8	151.4	-21.6	36.3	8.1	5.2	-0.9	-12.9
9	47.8	13.1	50.8	-13.8	0.4	7.7	-6.4	1.0
10	64.2		23.1		9.1		-6.0	

LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

	COS	SIN
0	-4999.8	-603.4
1	1274.7	-114.2
2	-12.2	42.8
3	-5.0	7.1
4	-16.7	-13.4
5	29.9	-18.1
6	-37.2	-443.9
7	464.7	18.7
8	-4.0	-4.8
9	3.5	8.6
10	-4.8	

LOWER ROTOR PITCH LINK LOAD

	COS	SIN
0	-103.4	107.6
1	-133.1	6.7
2	26.4	-20.3
3	-26.4	4.2
4	4.4	-7.6
5	3.3	0.1
6	23.1	-11.4
7	14.5	7.3
8	5.6	15.8
9	13.5	-25.4
10	-4.0	

PUN 11 POINT 7
 VKTS = 85.4
 V/CP = 0.250
 GMCG*P = 602.8
 RMJCO = 0.2193
 A-LS-C = 5.8
 CP/S = 0.001602
 CLK/S,R = 0.07196
 CDR/S,R = 0.00903
 CMY/S,R = 0.1112
 CMX/S,R = -0.0053

	UPPER ROTOR BLADE	NORMAL	BENDING	MOMENT	UK	EDGEWISE	UR	PITCH	UPPER ROTOR
	.1K	.2K	.3K	.6R	BENDING	.1K	LINK	LOAD	SHAFT STRESS
PSI									
0.00	-2655.	0.	-1105.	934.		0.		-323.	-433.
11.25	-2903.	0.	-1206.	1138.		0.		-240.	25.
22.50	-2898.	0.	-1393.	833.		0.		-319.	416.
33.75	-3033.	0.	-1474.	486.		0.		-348.	964.
45.00	-3350.	0.	-1476.	450.		0.		-177.	1796.
56.25	-3518.	0.	-1638.	190.		0.		51.	2412.
67.50	-3580.	0.	-1874.	-435.		0.		189.	3093.
78.75	-3490.	0.	-1916.	-1073.		0.		146.	4059.
90.00	-3140.	0.	-1804.	-1603.		0.		-36.	4616.
101.25	-2841.	0.	-1755.	-1818.		0.		-113.	4916.
112.50	-2930.	0.	-1897.	-1420.		0.		-37.	5661.
123.75	-3542.	0.	-2193.	-693.		0.		-11.	6238.
135.00	-4294.	0.	-2330.	-382.		0.		-36.	6054.
146.25	-4035.	0.	-2092.	-913.		0.		-15.	5511.
157.50	-2765.	0.	-1814.	-1771.		0.		-37.	4748.
168.75	-2475.	0.	-1892.	-1926.		0.		-122.	4197.
180.00	-3862.	0.	-2228.	-1270.		0.		-154.	4648.
191.25	-5257.	0.	-2573.	-653.		0.		-152.	5150.
202.50	-5883.	0.	-2820.	-346.		0.		-128.	4461.
213.75	-6208.	0.	-2868.	-159.		0.		-87.	3701.
225.00	-5982.	0.	-2751.	-334.		0.		-201.	3783.
236.25	-5381.	0.	-2636.	-616.		0.		-430.	3595.
247.50	-5346.	0.	-2515.	-228.		0.		-445.	2872.
258.75	-5499.	0.	-2342.	561.		0.		-292.	2466.
270.00	-5161.	0.	-2214.	1126.		0.		-283.	2195.
281.25	-5030.	0.	-2107.	1825.		0.		-368.	1547.
292.50	-5184.	0.	-1922.	2614.		0.		-396.	842.
303.75	-4874.	0.	-1739.	2685.		0.		-430.	121.
315.00	-3821.	0.	-1597.	2244.		0.		-420.	-389.
326.25	-3384.	0.	-1395.	1936.		0.		-321.	-229.
337.50	-2980.	0.	-1195.	1474.		0.		-322.	-43.
348.75	-2561.	0.	-1109.	916.		0.		-394.	-376.

RUN 21 POINT 7 CMGR = 602.8 ALFS,C = 5.8 CLR/S,R = 0.07196 CMY/S,R = 0.1112
 VKTS = 89.4 KADICO = 0.2193 CP/S = 0.001602 CDR/S,R = 0.00903 CMX/S,R = -0.0053
 V/OR = 0.250

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .1K		LR PITCH LINK LOAD	
	.1K	.2K	.3K	.6R	.1K	.1K	
300.00	-4602.	-2851.	-1807.	-667.	-3140.	-262.	
288.75	-4415.	-2818.	-1831.	-673.	-3929.	-239.	
277.50	-4167.	-2762.	-1742.	-701.	-4722.	-243.	
266.25	-3174.	-2288.	-1401.	-763.	-4624.	-300.	
255.00	-1994.	-1476.	-1052.	-796.	-4281.	-235.	
243.75	-2086.	-1186.	-970.	-697.	-4761.	-119.	
232.50	-2785.	-1559.	-1020.	-554.	-5813.	-137.	
221.25	-2307.	-1604.	-927.	-554.	-6225.	-128.	
210.00	-1040.	-942.	-656.	-663.	-5714.	16.	
198.75	-506.	-323.	-355.	-715.	-5449.	83.	
187.50	-839.	-260.	-209.	-677.	-6210.	62.	
176.25	-1375.	-544.	-300.	-595.	-7014.	95.	
165.00	-1886.	-860.	-463.	-479.	-6648.	87.	
153.75	-2300.	-1054.	-501.	-355.	-5715.	13.	
142.50	-2538.	-1125.	-455.	-260.	-5671.	28.	
131.25	-2670.	-1210.	-455.	-194.	-6467.	63.	
120.00	-2840.	-1373.	-517.	-153.	-6703.	8.	
108.75	-3116.	-1523.	-587.	-140.	-5884.	-7.	
97.50	-3356.	-1600.	-629.	-145.	-5124.	30.	
86.25	-3487.	-1689.	-693.	-154.	-5369.	-16.	
75.00	-3830.	-1951.	-895.	-162.	-5905.	-65.	
63.75	-4490.	-2373.	-1209.	-180.	-5485.	-30.	
52.50	-5072.	-2748.	-1461.	-211.	-4364.	-37.	
41.25	-5361.	-3007.	-1611.	-253.	-3924.	-126.	
30.00	-5279.	-3166.	-1712.	-339.	-4440.	-206.	
18.75	-4739.	-3052.	-1729.	-490.	-4676.	-235.	
7.50	-4447.	-2771.	-1718.	-617.	-3930.	-203.	
356.25	-5106.	-2874.	-1844.	-577.	-3115.	-176.	
345.00	-5790.	-3357.	-2059.	-486.	-3280.	-244.	
333.75	-5483.	-3540.	-2141.	-524.	-3997.	-303.	
322.50	-4909.	-3268.	-2037.	-635.	-4051.	-254.	
311.25	-4753.	-2984.	-1878.	-675.	-3363.	-230.	

RUN 21 PUNTI 8 UMEGR = 604.9 ALFS,C = 6.0 CLK/S,R = 0.09316 CMY/S,R = 0.1366
 VKTS = 90.0 RMJLOC = 0.2185 CP/S = 0.002323 CDR/S,R = 0.01053 CMX/S,R = -0.0050
 V/OR = 0.251

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2F		.3K		.6K	
	COS	SIN	CCS	SIN	COS	SIN	CCS	SIN
0	-1977.1	2632.2	0.0	0.0	-907.6	958.1	841.7	-454.7
1	-296.2	-275.9	0.0	0.0	44.5	-76.6	695.1	-187.4
2	685.0	155.2	0.0	0.0	280.0	74.2	46.8	101.5
3	12.8	-342.0	0.0	0.0	-33.2	-102.9	-342.1	375.9
4	385.5	326.4	0.0	0.0	105.3	72.4	-411.6	-296.6
5	-333.4	-314.7	0.0	0.0	-66.7	-113.7	227.1	239.6
6	69.1	98.5	0.0	0.0	13.7	-21.9	53.7	-42.1
7	5.7	-38.4	0.0	0.0	49.1	11.9	-52.4	14.4
8	-101.0	-8.2	0.0	0.0	0.9	-0.2	66.0	56.1
9	80.8	-173.5	0.0	0.0	13.7	13.1	-35.5	106.9
10	-17.8		0.0	0.0	-25.5		-0.1	

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	COS	SIN
0	0.0	0.0
1	0.0	0.0
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
6	0.0	0.0
7	0.0	0.0
8	0.0	0.0
9	0.0	0.0
10	0.0	0.0

UPPER ROTOR PITCH LINK LOAD

UPPER ROTOR PITCH LINK LOAD	COS	SIN
-195.9	213.3	2282.0
-105.0	18.7	-23.2
-32.7	-39.8	-35.2
-56.3	-36.0	191.0
-8.3	-65.2	-320.6
60.0	18.5	86.3
-1.6	79.1	-66.3
-27.9	2.3	12.9
-14.9	10.4	-22.2
-7.3	24.0	141.3
17.8		

UPPER ROTOR SHAFT STRESS

UPPER ROTOR SHAFT STRESS	COS	SIN
3124.2	2282.0	2282.0
-521.1	-23.2	-23.2
-501.7	-35.2	-35.2
162.8	191.0	191.0
64.4	-320.6	-320.6
-16.3	86.3	86.3
13.1	-66.3	-66.3
-144.5	12.9	12.9
74.0	-22.2	-22.2
0.9	141.3	141.3
-104.2		

RUN 21 POINT 8 OMEG*P = 604.9 ALFS.C = 6.0 CLR/S.R = 0.09316 CMY/S.R = 0.1366
 VPTS = 90.0 RHO100 = 0.2185 CP/S = 0.002323 CDR/S.R = 0.01058 CMX/S.R = -0.0050
 V/OR = 0.251

LOWER ROTOR BLADE NORMAL BENDING MUMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-955.9	-1060.0	-170.7	-587.3	96.6	-124.1	-294.6	253.4
1	722.6	351.9	615.6	228.8	534.9	162.1	226.1	56.0
2	59.1	-136.9	11.5	-79.5	-67.4	-53.9	-100.1	-25.1
3	-30.2	185.0	-36.1	64.9	-8.3	64.0	32.7	-25.2
4	246.5	-7.9	180.9	26.9	78.7	29.1	-56.6	0.1
5	-68.4	483.8	-42.6	223.5	-30.0	125.1	9.7	-53.5
6	110.2	17.9	191.5	-85.6	62.6	-29.0	-20.0	3.6
7	246.4	-16.4	112.0	15.2	44.7	-25.0	27.5	-4.4
8	-137.7	102.7	-46.1	61.0	3.5	-3.5	8.9	-9.2
9	-107.9	25.6	-3.8	-27.7	1.2	-3.5	9.0	-0.2
10	54.1		31.4		9.1	-12.4	-8.2	

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LOWER ROTOR EDGEWISE BENDING MUMENT .1R

HARMONIC	LOWER ROTOR PITCH LINK LOAD	
	COS	SIN
0	-82.0	110.1
1	-130.5	16.7
2	30.6	-9.2
3	-24.7	7.9
4	2.0	-11.9
5	-3.1	-4.0
6	33.8	-20.6
7	22.6	10.0
8	2.8	11.4
9	34.5	-14.5
10	-15.8	

RUN	21	PPOINT	8	OMEGAR =	604.9	ALFS,C =	6.0	CLR/S,R =	0.09316	CMV/S,R =	0.1366
VPTS =	90.0	OMEGAR =	0.2185	CP/S =	0.002323	CDR/S,R =	0.01058	CMX/S,R =	-0.0050		
V/R =	0.251	RHOL00 =									
		UPPER ROTOR	BLADE	NORMAL	BENDING	MOMENT	UP	EDGEWISE	UR PITCH	UPPER ROTOR	
		.1K	.2R	.3R	.6R	BENDING	.1K	LINK LOAD	SHAFT STRESS		
PSI											
0.00		-1487.	0.	-526.	1089.	-372.	0.		2152.		
11.25		-1395.	0.	-490.	1398.	-284.	0.		2760.		
22.50		-793.	0.	-459.	1222.	-340.	0.		3143.		
33.75		-616.	0.	-301.	1255.	-343.	0.		3668.		
45.00		-855.	0.	-121.	1539.	-160.	0.		4439.		
56.25		-652.	0.	-199.	1300.	108.	0.		4731.		
67.50		-397.	0.	-385.	755.	281.	0.		4988.		
78.75		-299.	0.	-309.	288.	175.	0.		5685.		
90.00		268.	0.	-92.	-359.	-84.	0.		5896.		
101.25		791.	0.	-60.	-710.	-126.	0.		5705.		
112.50		441.	0.	-227.	-67.	28.	0.		6101.		
123.75		-313.	0.	-451.	910.	68.	0.		6339.		
135.00		-743.	0.	-515.	1158.	-5.	0.		5522.		
146.25		-313.	0.	-246.	501.	-42.	0.		4577.		
157.50		923.	0.	42.	-464.	-69.	0.		3432.		
168.75		1238.	0.	-96.	-700.	-89.	0.		2887.		
180.00		-426.	0.	-541.	104.	-99.	0.		3188.		
191.25		-2355.	0.	-995.	888.	-149.	0.		3441.		
202.50		-3337.	0.	-1439.	994.	-144.	0.		2648.		
213.75		-4062.	0.	-1755.	838.	-80.	0.		1916.		
225.00		-434.	0.	-1802.	459.	-197.	0.		1893.		
236.25		-3941.	0.	-1802.	-85.	-441.	0.		1566.		
247.50		-4157.	0.	-1927.	-24.	-483.	0.		1201.		
258.75		-4995.	0.	-2028.	622.	-364.	0.		1598.		
270.00		-5126.	0.	-2048.	1150.	-322.	0.		1815.		
281.25		-4979.	0.	-2031.	1748.	-342.	0.		1365.		
292.50		-5184.	0.	-1921.	2457.	-412.	0.		1073.		
303.75		-4920.	0.	-1760.	2533.	-516.	0.		881.		
315.00		-3915.	0.	-1610.	2121.	-442.	0.		682.		
326.25		-4230.	0.	-1343.	1809.	-274.	0.		1152.		
337.50		-2505.	0.	-953.	1331.	-309.	0.		1816.		
348.75		-1641.	0.	-657.	871.	-436.	0.		1916.		

RUN 21
 VKTS = 90.0
 V/CR = 0.251
 POINT 8
 UMEG#R = 604.9
 RHO100 = 0.2185
 ALFS,C = 6.0
 CP/S = 0.002323
 CLR/S,R = 0.09316
 CDR/S,R = 0.01058
 CMY/S,R = 0.1366
 CMX/S,R = -0.0050

PSI	LOWER ROTOR BLADE NORMAL			BENDING MOMENT		LR EDGEWISE		LR PITCH	
	.1R	.2R	.3R	.6R	BENDING .1R	BENDING .1R	LINK LOAD		
300.00	419.	741.	513.	-461.	-2921.	-2921.	-240.		
288.75	-212.	463.	255.	-450.	-3753.	-3753.	-227.		
277.50	-669.	51.	131.	-437.	-4446.	-4446.	-224.		
266.25	166.	198.	247.	-520.	-4573.	-4573.	-282.		
255.00	928.	751.	373.	-595.	-4765.	-4765.	-220.		
243.75	-21.	598.	211.	-504.	-5494.	-5494.	-69.		
232.50	-1304.	-260.	-132.	-379.	-6579.	-6579.	-88.		
221.25	-1125.	-611.	-276.	-429.	-7236.	-7236.	-146.		
210.00	-296.	-238.	-175.	-596.	-6954.	-6954.	6.		
198.75	-180.	25.	-102.	-723.	-6649.	-6649.	147.		
187.50	-782.	-154.	-204.	-756.	-7364.	-7364.	100.		
176.25	-1712.	-630.	-454.	-687.	-8176.	-8176.	80.		
165.00	-2538.	-1221.	-729.	-559.	-7644.	-7644.	118.		
153.75	-2796.	-1527.	-824.	-461.	-6400.	-6400.	60.		
142.50	-2708.	-1427.	-693.	-379.	-6069.	-6069.	14.		
131.25	-2693.	-1304.	-514.	-257.	-6663.	-6663.	68.		
120.00	-2549.	-1236.	-366.	-140.	-6754.	-6754.	66.		
108.75	-2210.	-998.	-187.	-79.	-5760.	-5760.	14.		
97.50	-2011.	-725.	23.	-1.	-4876.	-4876.	18.		
86.25	-1833.	-548.	222.	76.	-5227.	-5227.	-2.		
75.00	-1411.	-322.	360.	99.	-5942.	-5942.	-61.		
63.75	-1130.	-126.	365.	104.	-5566.	-5566.	-33.		
52.50	-1356.	-163.	321.	138.	-4519.	-4519.	25.		
41.25	-1548.	-249.	397.	145.	-4208.	-4208.	-43.		
30.00	-918.	-48.	559.	48.	-4674.	-4674.	-177.		
18.75	193.	455.	688.	-122.	-4814.	-4814.	-219.		
7.50	531.	861.	758.	-228.	-4107.	-4107.	-159.		
356.25	-129.	740.	671.	-201.	-3241.	-3241.	-135.		
345.00	-618.	286.	397.	-153.	-3227.	-3227.	-228.		
333.75	-402.	125.	244.	-201.	-3846.	-3846.	-308.		
322.50	-11.	372.	410.	-309.	-3618.	-3618.	-262.		
311.25	337.	661.	603.	-405.	-3052.	-3052.	-217.		

PUP: 21 POINT 9 CMGCR = 604.5 ALFS,C = 6.2 CLR/S,R = 0.12079 CMY/S,R = 0.1746
 VKTS = 69.6 RMU100 = 0.2181 CP/S = 0.003962 CDR/S,R = 0.01305 CHX/S,R = -0.00064
 V/CR = 0.251

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.0R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	601.9		0.0		420.1		1968.9	
1	742.0	4712.7	0.0	0.0	508.8	1973.9	1069.4	367.2
2	517.2	-674.7	0.0	0.0	168.0	-318.6	-277.2	-703.5
3	-78.9	179.2	0.0	0.0	-74.1	86.2	-339.6	114.2
4	151.5	-560.6	0.0	0.0	33.7	-194.1	-175.4	590.8
5	-381.1	380.6	0.0	0.0	-73.9	62.6	232.6	-363.7
6	-2.0	-486.1	0.0	0.0	-17.5	-257.7	151.4	336.7
7	21.4	163.1	0.0	0.0	52.8	-58.0	-73.4	-62.6
8	-136.2	-117.5	0.0	0.0	-21.8	17.6	84.2	67.1
9	107.6	-10.1	0.0	0.0	6.5	1.1	-24.6	63.5
10	-68.2	-170.6	0.0	0.0	-15.0	20.5	59.4	137.3

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

UPPER ROTOR PITCH LINK LOAD

UPPER ROTOR SHAFT STRESS

HARMONIC	BENDING MOMENT .1R		PITCH LINK LOAD		SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-199.0		3612.0	
1	0.0	0.0	-115.3	252.4	-1426.4	3344.0
2	0.0	0.0	-14.0	52.3	-540.6	75.4
3	0.0	0.0	-62.3	-46.4	205.4	-46.2
4	0.0	0.0	-59.2	-8.2	249.2	132.5
5	0.0	0.0	67.0	-143.2	-130.0	-475.4
6	0.0	0.0	99.5	5.7	63.9	110.8
7	0.0	0.0	-27.7	134.0	-355.4	-35.9
8	0.0	0.0	-5.3	31.1	6.6	275.9
9	0.0	0.0	22.8	8.2	-18.3	-47.4
10	0.0	0.0	2.0	5.4	-98.0	239.6

PIN 21 POINT 9
 VKTS = 89.8
 V/CR = 0.251
 OMEG*H = 604.5
 RHJ100 = 0.2181
 ALFS,C = 6.2
 CP/S = 0.003962
 CLR/S,R = 0.12079
 CDR/S,R = 0.01305
 CMY/S,R = 0.1746
 CMX/S,R = -0.0064

HARMONIC	LOWER ROTOR BLADE NORMAL BENDING MOMENT			.3K			.6R		
	.1R	.2R	.3R	COS	SIN	COS	SIN	COS	SIN
0	COS	COS	COS	2384.8	-1545.3	1842.9	-773.5	-55.1	193.9
1	-674.6	-499.3	-2600.1	-387.6	131.4	-246.5	73.0	75.0	129.5
2	-459.2	-387.6	124.2	-127.6	-97.6	-357.8	-63.2	-226.3	115.5
3	-144.2	-127.6	-214.4	55.3	353.3	-59.7	198.8	32.5	-86.6
4	-77.6	55.3	536.8	69.4	151.5	-15.6	99.5	-17.0	-25.8
5	35.1	69.4	272.0	211.4	352.3	1.3	187.3	-5.6	-75.9
6	32.3	211.4	693.6	125.7	-57.5	55.6	-14.0	-15.3	-6.9
7	207.3	125.7	28.1	-121.2	-25.7	63.0	-18.0	-24.4	14.0
8	-199.6	-121.2	-216.2	-47.3	-33.6	8.0	-8.5	19.7	18.3
9	-51.1	-47.3	-143.7	-11.5	-57.1	15.9	-5.9	9.2	12.7
10	29.6	-11.5	-132.1			34.6		-6.4	

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HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5496.9		-10.5	
1	2864.1	616.2	-188.6	123.5
2	206.7	-372.3	-18.8	21.5
3	63.7	94.9	-10.2	-58.2
4	72.7	44.6	24.9	3.0
5	-20.1	16.6	42.5	14.2
6	-107.4	-71.7	47.6	19.4
7	803.0	67.4	4.4	-9.6
8	-2.7	55.0	-3.2	7.5
9	30.5	27.6	-6.6	10.1
10	5.2	-1.9	10.4	-10.8

RUN 21
VKTS =
V/CP =

POINT 9
89.8
0.251

CMEG*P = 604.5
RHU100 = 0.2181

ALFS,C = 6.2
CP/S = 0.003962

CLR/S,R = 0.12079
CUR/S,R = 0.01305

CAY/S,R = 0.1746
CHX/S,R = -0.0064

	UPPER ROTOR BLADE NORMAL .1R	BENDING MOMENT .3R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
PSI					
0.00	1476.	988.	2676.	-291.	1509.
11.25	1739.	1065.	2997.	-255.	2857.
22.50	2942.	1324.	2495.	-428.	5301.
33.75	3762.	1791.	2420.	-418.	3711.
45.00	3964.	2185.	2775.	-25.	4908.
56.25	4288.	2187.	2719.	408.	5803.
67.50	4459.	2027.	2576.	432.	6381.
78.75	4481.	2104.	2451.	36.	7110.
90.00	4912.	2306.	1960.	-321.	7347.
101.25	5242.	2295.	1806.	-209.	7484.
112.50	4787.	1997.	2520.	187.	8147.
123.75	3758.	1602.	3219.	309.	8166.
135.00	2799.	1453.	3056.	49.	7152.
146.25	2983.	1616.	1873.	-190.	6027.
157.50	4139.	1584.	308.	-183.	4800.
168.75	3657.	990.	-82.	-91.	4145.
180.00	653.	147.	947.	-61.	5019.
191.25	-2100.	-605.	1558.	-67.	5290.
202.50	-3197.	-1247.	1053.	-64.	3385.
213.75	-3829.	-1659.	422.	-73.	1955.
225.00	-4054.	-1736.	-124.	-163.	2241.
236.25	-3730.	-1702.	-515.	-369.	2019.
247.50	-4052.	-1741.	-141.	-566.	1207.
258.75	-4742.	-1783.	141.	-557.	1309.
270.00	-4570.	-1713.	192.	-381.	1540.
281.25	-4155.	-1458.	2957.	-332.	1003.
292.50	-3902.	-1083.	3834.	-502.	122.
303.75	-2884.	-769.	3713.	-595.	-816.
315.00	-1453.	-443.	3207.	-443.	-820.
326.25	-390.	103.	2893.	330.	626.
337.50	730.	674.	2303.	-425.	1507.
348.75	1554.	943.	2023.	-453.	1113.

RUN 21
 VKTS = 89.8
 V/DR = 0.251
 POINT 9
 UMEGR = 604.5
 RHU100 = 0.2181
 ALFS,C = 6.2
 CP/S = 0.003962
 CLR/S,R = 0.12079
 CDR/S,R = 0.01305
 CMY/S,R = 0.1746
 CMX/S,R = -0.0066

LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
PSI	.1R	.2K	.3R	.6R			
300.00	5818.	4536.	2904.	-261.	-4282.	-142.	
288.75	4769.	4131.	2768.	-93.	-5610.	-130.	
277.50	4505.	3708.	2649.	-3.	-6119.	-211.	
266.25	5280.	3916.	2779.	-32.	-5986.	-232.	
255.00	5912.	4407.	2980.	-74.	-6432.	-101.	
243.75	5370.	4348.	2863.	-38.	-7865.	17.	
232.50	4381.	3706.	2565.	-15.	-8994.	39.	
221.25	4542.	3444.	2486.	-151.	-8662.	82.	
210.00	5368.	3832.	2540.	-376.	-7801.	149.	
198.75	5008.	3930.	2432.	-494.	-8036.	178.	
187.50	3490.	3250.	2103.	-461.	-8978.	203.	
176.25	2124.	2308.	1630.	-345.	-8819.	198.	
165.00	1356.	1626.	1253.	-220.	-7361.	122.	
153.75	1114.	1380.	1214.	-143.	-6409.	95.	
142.50	1163.	1449.	1353.	-73.	-6900.	158.	
131.25	1072.	1487.	1419.	43.	-7456.	172.	
120.00	934.	1452.	1463.	145.	-6585.	139.	
108.75	822.	1462.	1504.	227.	-5015.	163.	
97.50	479.	1345.	1489.	348.	-4564.	192.	
86.25	488.	1224.	1513.	404.	-5324.	185.	
75.00	1000.	1402.	1491.	322.	-5525.	190.	
63.75	498.	1345.	1233.	291.	-4283.	140.	
52.50	-821.	697.	995.	341.	-2965.	-30.	
41.25	-477.	460.	1061.	211.	-2975.	-201.	
30.00	1283.	1165.	1232.	-86.	-3496.	-248.	
18.75	1893.	1807.	1356.	-257.	-2959.	-189.	
7.50	1422.	1804.	1428.	-253.	-1800.	-114.	
356.25	1232.	1571.	1247.	-187.	-1743.	-126.	
345.00	1104.	1323.	975.	-74.	-2863.	-233.	
333.75	1521.	1412.	1246.	-23.	-3558.	-306.	
322.50	3563.	2458.	2068.	-158.	-3284.	-281.	
311.25	5699.	3932.	2737.	-311.	-3248.	-213.	

HARMONIC 21 POINT 10
 WTS = 85.9 CUEFF = 607.3 ALFS,C = 6.4 CLR/S,K = 0.13876 CMY/S,R = 0.1901
 V/CR = 0.250 HRCLOC = 0.2169 CP/S = 0.007045 CDR/S,K = 0.01286 CMX/S,R = -0.0043

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	3349.1	5411.0	0.0	0.0	2097.1	4189.4	3231.2	352.9
1	-1206.4	-546.1	0.0	0.0	-467.4	-306.3	96.3	-550.5
2	-326.5	185.3	0.0	0.0	-243.4	118.7	-1353.2	409.2
3	-136.3	-765.9	0.0	0.0	-100.0	-229.5	-282.3	741.5
4	-237.0	208.1	0.0	0.0	-57.3	16.1	176.6	-229.8
5	-238.7	-545.4	0.0	0.0	-62.5	-201.1	162.6	375.2
6	32.5	193.9	0.0	0.0	-8.3	-43.3	147.1	-67.3
7	55.4	9.4	0.0	0.0	40.8	-11.9	-79.9	-31.2
8	-234.2	8.2	0.0	0.0	29.3	10.4	152.4	27.0
9	-79.3	-156.7	0.0	0.0	-1.1	12.9	116.9	153.1
10	-29.5		0.0	0.0	-22.8		44.0	

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

UPPER ROTOR PITCH LINK LOAD

UPPER ROTOR SHAFT STRESS

HARMONIC

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-168.8	357.1	4320.4	4170.0
1	0.0	0.0	-141.4	-48.0	-251.8	-22.7
2	0.0	0.0	48.7	64.4	-646.0	-383.1
3	0.0	0.0	-62.2	15.6	408.0	281.3
4	0.0	0.0	-62.8	-98.5	251.9	-390.1
5	0.0	0.0	-75.8	18.7	-140.9	-42.0
6	0.0	0.0	24.5	122.3	51.0	-22.0
7	0.0	0.0	55.5	0.4	-301.1	-9.5
8	0.0	0.0	-23.3	-28.5	132.1	61.0
9	0.0	0.0	1.7	45.8	67.8	189.3
10	0.0	0.0	10.6		-105.9	

RUN 21 PUNT 10 OMEGAR = 607.3 ALFS,C = 6.4 CLR/S,R = 0.13876 CHY/S,R = 0.1901
 VKTS = 64.9 RHJ100 = 0.2169 CP/S = 0.007045 CDR/S,R = 0.01286 CMX/S,R = -0.0043
 V/CR = 0.250

HARMONIC	LOWER ROTOR BLADE NORMAL BENDING MOMENT			
	.1R		.3R	
	COS	SIN	COS	SIN
0	3936.8	-2271.7	2524.6	28.4
1	2238.4	722.8	1194.8	315.1
2	-1398.4	-120.6	-787.3	-328.2
3	-287.7	715.4	-111.0	60.6
4	-493.4	217.1	-97.6	51.1
5	-176.1	683.4	-51.9	25.8
6	-80.5	-174.9	52.8	0.4
7	161.1	-311.8	55.1	-15.9
8	-50.1	-224.7	28.2	1.5
9	558.1	-189.8	18.3	-49.3
10	45.1		24.0	-2.0

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5400.5	1608.2	5.4	173.9
1	3819.2	-1718.3	-214.4	61.5
2	208.7	142.7	-61.7	-61.6
3	287.5	31.9	-7.1	17.3
4	11.1	40.5	36.1	31.9
5	-92.0	-171.9	33.6	20.3
6	-156.5	26.6	13.9	-52.3
7	378.2	139.5	-28.3	-51.6
8	-60.3	206.7	4.4	-36.5
9	92.5	63.1	-0.1	30.7
10	35.2		-41.1	

PWR 21 PLANT 10 69.9 LMEOPR = 607.3 ALFS,C = 6.4 CLR/S,K = 0.13070 CMY/S,K = 0.1901
 VTS = 0.250 RHLIUC = 0.2169 CP/S = 0.007045 CDR/S,K = 0.01286 CMX/S,K = -0.0043
 V/CH =

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT			UP EDGEWISE BENDING .IK		UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
	.IK	.2R	.3R	.6R	.IK		
0.00	1399.	0.	1204.	2432.	0.	-393.	3785.
11.25	2118.	0.	1278.	2913.	0.	-217.	4535.
22.50	3897.	0.	1779.	2631.	0.	-189.	4915.
33.75	5335.	0.	2702.	2986.	0.	-74.	5768.
45.00	5600.	0.	3563.	3377.	0.	149.	6890.
56.25	5480.	0.	3854.	3228.	0.	261.	7171.
67.50	5852.	0.	3842.	3813.	0.	170.	7703.
78.75	8330.	0.	4054.	4767.	0.	-119.	9126.
90.00	8945.	0.	4484.	4530.	0.	-295.	9651.
101.25	10545.	0.	4585.	4139.	0.	39.	9313.
112.50	9829.	0.	4437.	4870.	0.	485.	9653.
123.75	8311.	0.	4253.	5363.	0.	395.	9491.
135.00	8254.	0.	4122.	4573.	0.	115.	7536.
146.25	8445.	0.	4067.	3173.	0.	165.	5397.
157.50	8819.	0.	3940.	1873.	0.	243.	4325.
168.75	7759.	0.	3345.	1508.	0.	122.	4017.
180.00	4709.	0.	2385.	2364.	0.	51.	4221.
191.25	1910.	0.	1466.	2936.	0.	-4.	4022.
202.50	951.	0.	861.	2347.	0.	-158.	2829.
213.75	759.	0.	638.	1683.	0.	-280.	1995.
225.00	589.	0.	620.	1512.	0.	-449.	1929.
236.25	549.	0.	513.	1671.	0.	-681.	1526.
247.50	-10.	0.	318.	2568.	0.	-617.	588.
258.75	-1062.	0.	224.	3954.	0.	-348.	820.
270.00	-1541.	0.	203.	4914.	0.	-382.	1159.
281.25	-1475.	0.	200.	5408.	0.	-626.	882.
292.50	-1407.	0.	275.	5433.	0.	-657.	481.
303.75	-1043.	0.	356.	4615.	0.	-496.	149.
315.00	-235.	0.	430.	3366.	0.	-331.	448.
326.25	797.	0.	698.	2131.	0.	-286.	1841.
337.50	1736.	0.	1090.	1097.	0.	-439.	3012.
348.75	1928.	0.	1260.	1223.	0.	-553.	3272.

RUN 21
 VKTS =
 V/OR =
 POINT 10
 89.9
 0.250
 OMEG*R = 607.3
 RHQ100 = 0.2169
 ALFS,C = 6.4
 CP/S = 0.007045
 CLR/S,K = 0.13876
 CDR/S,R = 0.01286
 CMY/S,R = 0.1901
 CMX/S,R = -0.0043

PSI	LOWER ROTOR BLADE NORMAL BENDING MUMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	8051.	6557.	4222.	-179.	-4023.	-92.	
288.75	7179.	5828.	3959.	46.	-4987.	-243.	
277.50	7113.	5499.	3676.	127.	-6475.	-252.	
266.25	6641.	5340.	3673.	181.	-7720.	-111.	
255.00	6653.	5221.	3702.	173.	-8530.	-106.	
243.75	6588.	5097.	3333.	79.	-9777.	-30.	
232.50	4835.	4288.	2737.	9.	-11038.	156.	
221.25	3493.	3208.	2327.	-140.	-11141.	138.	
210.00	4177.	3030.	2051.	-487.	-10550.	92.	
198.75	3833.	3070.	1654.	-751.	-10426.	241.	
187.50	1094.	1969.	1080.	-698.	-10399.	269.	
176.25	-976.	409.	425.	-541.	-9288.	131.	
165.00	-1102.	-276.	-32.	-479.	-7314.	119.	
153.75	-903.	-208.	11.	-409.	-5958.	140.	
142.50	-535.	114.	472.	-280.	-5696.	112.	
131.25	712.	817.	1014.	-173.	-5462.	203.	
120.00	1756.	1693.	1469.	-19.	-4607.	259.	
108.75	1650.	2104.	1884.	294.	-3736.	169.	
97.50	1450.	2259.	2356.	589.	-3596.	258.	
86.25	3465.	3000.	2830.	660.	-4322.	472.	
75.00	4478.	3899.	3078.	676.	-5090.	376.	
63.75	3546.	3871.	3123.	796.	-4606.	71.	
52.50	3442.	3539.	3263.	747.	-3246.	-73.	
41.25	5550.	4237.	3472.	388.	-2775.	-72.	
30.00	6408.	5108.	3490.	115.	-2937.	-80.	
18.75	4888.	4764.	3367.	124.	-2069.	-160.	
7.50	4232.	4065.	3144.	125.	-907.	-264.	
356.25	4421.	3851.	2669.	87.	-990.	-231.	
345.00	3433.	3387.	2275.	189.	-1360.	-185.	
333.75	3613.	3202.	2571.	172.	-1148.	-383.	
322.50	7103.	4637.	3410.	-154.	-1602.	-503.	
311.25	9089.	6410.	4080.	-358.	-2962.	-250.	

PJN 21 PJNT 11
 VPTS = 89.8 UAG*E = 610.2 ALFS,C = 8.3 CLR/S,R = 0.07363 CMY/S,R = 0.1446
 V/CR = 0.248 RHJIGU = 0.2105 CP/S = 0.000894 CDR/S,R = 0.01289 CMX/S,R = -0.0031

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2670.5		0.0		-1152.7		613.1	
1	548.2	-326.5	0.0	0.0	576.9	-502.3	1342.7	-1282.5
2	345.4	-339.1	0.0	0.0	88.2	-114.8	-364.6	-219.5
3	118.7	136.0	0.0	0.0	6.4	51.6	-344.0	135.9
4	489.3	-141.9	0.0	0.0	135.6	-35.2	-502.0	193.1
5	-295.6	321.0	0.0	0.0	-60.7	72.6	174.6	-272.7
6	54.9	-214.3	0.0	0.0	4.8	-77.5	34.3	168.9
7	-3.5	112.2	0.0	0.0	31.4	-0.7	-45.0	-53.8
8	-32.9	-81.3	0.0	0.0	-8.9	7.1	17.9	34.0
9	277.5	28.6	0.0	0.0	8.0	2.0	-210.1	21.7
10	-62.5	-69.1	0.0	0.0	-3.9	8.7	-4.6	37.8

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HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-397.5		3261.3	
1	0.0	0.0	-82.4	207.7	-1794.8	438.8
2	0.0	0.0	-22.1	-0.4	-342.6	-162.5
3	0.0	0.0	-70.9	-15.7	130.2	24.1
4	0.0	0.0	5.7	-31.9	-99.5	93.0
5	0.0	0.0	22.5	-62.7	-67.9	-279.5
6	0.0	0.0	-12.1	21.1	-22.7	47.6
7	0.0	0.0	-10.2	34.4	-155.1	-141.9
8	0.0	0.0	-26.4	-16.2	21.8	88.5
9	0.0	0.0	-3.4	20.7	31.5	-19.9
10	0.0	0.0	31.3	11.0	-57.2	54.2

PUN 21
 VKTS =
 V/OR =

CLR/S,R = 0.07363
 CDR/S,R = 0.01289

ALFS,C = 8.3
 CP/S = 0.000894

OMEG*K = 610.2
 RHU100 = 0.2165

PJINT 11
 69.8
 3.248

LOWER ROTOR BLADE NORMAL BENDING MOMENT

CMY/S,R = 0.1446
 CMX/S,R = -0.0031

.3R

.6R

SIN

COS

COS

SIN

.2R

COS

.1R

SIN

HARMONIC

0	-4748.4	-2841.0	-1770.8	-575.1	330.2
1	-735.3	-305.9	-112.1	116.1	112.3
2	216.0	147.8	34.5	-41.9	133.6
3	86.3	49.5	36.4	22.9	5.7
4	335.3	192.0	99.6	-61.0	1.0
5	-235.4	-145.1	-73.6	31.2	-39.2
6	37.3	129.7	40.3	-9.4	5.9
7	227.6	104.6	49.3	-23.2	1.7
8	-29.1	-3.6	8.7	2.4	1.1
9	172.3	54.1	-4.7	-16.6	1.8
10	37.8	1.3	7.3	-2.5	

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LOWER ROTOR
 PITCH LINK LOAD

LOWER ROTOR EDGEWISE
 BENDING MOMENT, 1P

HARMONIC

0	-535.3	-153.9	130.4
1	1007.0	-111.4	6.6
2	-93.3	26.2	-5.6
3	-8.4	-25.7	-1.9
4	-16.4	4.7	-5.7
5	17.4	-14.8	2.2
6	-21.0	27.8	-14.8
7	246.6	14.2	14.1
8	30.7	6.5	-11.0
9	-18.4	8.2	-26.3
10	-0.3	-6.4	

[illegible]

RUN 21
VKTS =
V/OR =

POINT 11
89.8
0.248

OMEG#R = 610.2
RHJICO = 0.2165

ALFS,C = 8.3
CP/S = 0.000894

CLR/S,R = 0.07363
CUR/S,R = 0.01289

CMY/S,R = 0.1440
CMX/S,R = -0.0031

LOWER ROTOR BLADE NORMAL BENDING MOMENT		LR EDGEWISE BENDING		LR PITCH LINK LOAD	
.1R		.3R		.1R	
PSI					
300.00	-6613.	-3967.	-2631.	-3163.	-328.
288.75	-6726.	-4292.	-2802.	-3680.	-345.
277.50	-6137.	-4131.	-2730.	-4472.	-309.
266.25	-5163.	-3570.	-2390.	-4636.	-337.
255.00	-4227.	-2942.	-2089.	-4448.	-301.
243.75	-4289.	-2731.	-2092.	-4786.	-183.
232.50	-5225.	-3127.	-2248.	-5626.	-188.
221.25	-5289.	-3453.	-2234.	-6096.	-240.
210.00	-4022.	-3004.	-1983.	-5869.	-142.
198.75	-3087.	-2222.	-1664.	-5657.	-9.
187.50	-3327.	-1976.	-1478.	-6139.	31.
176.25	-3832.	-2237.	-1503.	-6899.	34.
165.00	-4038.	-2447.	-1602.	-6984.	12.
153.75	-4284.	-2499.	-1586.	-6351.	-21.
142.50	-4561.	-2566.	-1478.	-6023.	-7.
131.25	-4478.	-2568.	-1381.	-6500.	-8.
120.00	-4175.	-2395.	-1266.	-6910.	-40.
108.75	-4072.	-2203.	-1105.	-6443.	-13.
97.50	-4051.	-2115.	-988.	-5759.	-4.
86.25	-3898.	-2062.	-977.	-5905.	-85.
75.00	-3991.	-2078.	-1038.	-6520.	-102.
63.75	-4463.	-2264.	-1139.	-6405.	-39.
52.50	-4737.	-2487.	-1269.	-5511.	-61.
41.25	-4727.	-2606.	-1407.	-4981.	-136.
30.00	-4348.	-2708.	-1500.	-5271.	-184.
18.75	-4309.	-2741.	-1517.	-5488.	-245.
7.50	-4491.	-2615.	-1560.	-4857.	-259.
356.25	-4842.	-2700.	-1780.	-3915.	-213.
345.00	-5849.	-3251.	-2106.	-3665.	-271.
333.75	-6119.	-3706.	-2313.	-4070.	-365.
322.50	-5686.	-3647.	-2366.	-4149.	-311.
311.25	-5895.	-3601.	-2441.	-3551.	-257.

RUN 21 PLINT 12
 VKTS = 90.0
 V/CR = 0.249
 CMY/S,R = 0.1446
 CMX/S,R = -0.0031
 CLR/S,R = 0.07364
 CDR/S,R = 0.01288
 ALFS,C = 8.3
 CP/S = 0.000871
 OMEGA K = 610.3
 RHU100 = 0.2125

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2655.2		0.0		-1210.6		613.2	
1	476.0	-278.1	0.0	0.0	504.5	-495.1	1144.7	-1918.6
2	427.5	-424.7	0.0	0.0	137.2	-135.7	-328.8	-195.9
3	130.5	101.3	0.0	0.0	14.6	58.5	-270.8	231.9
4	475.9	-316.5	0.0	0.0	136.6	-74.9	-471.8	357.2
5	-109.7	377.2	0.0	0.0	-20.3	83.8	39.0	-295.6
6	-68.2	-195.3	0.0	0.0	-38.6	-61.9	111.8	117.6
7	44.9	68.8	0.0	0.0	27.1	-20.1	-62.2	-9.9
8	-68.0	-27.0	0.0	0.0	3.9	6.1	33.5	4.4
9	210.2	-234.1	0.0	0.0	-4.7	-6.0	-127.1	197.0
10	-93.7	5.3	0.0	0.0	12.3	10.7	21.9	18.7

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HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT, 1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-390.2		3276.3	
1	0.0	0.0	-63.9	218.4	-1743.0	664.9
2	0.0	0.0	-23.8	6.3	-547.0	-16.6
3	0.0	0.0	-71.1	3.8	144.4	-5.8
4	0.0	0.0	-9.0	-31.8	-80.0	139.0
5	0.0	0.0	-7.2	-66.1	-183.8	-211.8
6	0.0	0.0	-1.3	25.8	9.2	44.4
7	0.0	0.0	13.4	33.4	-231.1	-31.1
8	0.0	0.0	-25.1	8.4	59.8	68.2
9	0.0	0.0	9.1	14.0	-3.4	-26.0
10	0.0	0.0	24.1	-17.3	21.1	90.6

RUN 21 PUINT 12
 VKTS = 90.0 GMEGR = 610.3 ALFS,C = 8.3 CLR/S,R = 0.07364 CMY/S,R = 0.1444
 V/CR = 0.249 RHU100 = 0.2165 CP/S = 0.000871 CDR/S,K = 0.01288 CMX/S,R = -0.0031

LOWER ROTOR BLADE NORMAL BENDING MUMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-4766.4		-2858.9		-1787.5		-574.2	
1	-699.6	561.8	-326.9	638.5	-144.2	663.6	92.1	342.6
2	144.2	481.0	109.2	274.7	14.9	156.9	-41.3	6.3
3	103.0	-68.6	60.9	-45.1	40.9	-21.5	29.3	-29.0
4	343.2	82.6	217.6	-23.1	102.4	5.7	-67.1	-16.9
5	-175.7	-250.4	-160.3	-91.1	-69.2	-45.0	27.6	27.3
6	-181.9	339.5	7.2	226.9	-12.6	106.8	12.7	-39.9
7	181.2	98.8	127.9	-10.8	51.1	11.2	-17.7	-7.2
8	-27.4	-40.9	-11.0	-2.9	11.5	-1.5	1.7	0.6
9	77.9	183.5	90.2	28.6	2.0	-1.1	-8.5	-18.0
10	13.5	-19.7	1.0	0.9	2.4	11.6	-1.7	-1.8

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LOWER ROTOR EDGEWISE BENDING MUMENT .1R LOWER ROTOR PITCH LINK LOAD

HARMONIC	BENDING MUMENT .1R		PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5410.5		-152.8	
1	1087.4	-874.7	-122.7	119.4
2	-52.3	-279.6	24.3	12.1
3	14.8	-18.6	-23.4	-12.4
4	-32.0	38.5	4.1	-1.2
5	40.2	-17.8	-14.1	-14.6
6	-22.9	-32.6	22.0	16.7
7	469.1	-142.8	16.5	-4.1
8	17.2	28.8	-1.2	12.5
9	-7.2	-13.1	17.0	2.3
10	4.7	-11.7	19.2	-19.7

RUN 21 POINT 12
 VKTS = 90.0 UMEG#R = 610.3 ALFS,C = 8.3 CLK/S,R = 0.07364 CJY/S,R = 0.1446
 V/CR = 0.249 RHU100 = 0.2165 CP/S = 0.000371 COR/S,R = 0.01288 CMX/S,R = -0.0031

PSI	UPPER ROTOR BLADE NORMAL		BENDING MOMENT		UR EDGEWISE BENDING .1K	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
	.1K	.2K	.3R	.6R			
0.00	-1230.	0.	-438.	703.	0.	-545.	72.
11.25	-1867.	0.	-671.	942.	0.	-521.	1153.
22.50	-2182.	0.	-926.	783.	0.	-466.	1686.
33.75	-2642.	0.	-1133.	632.	0.	-360.	2297.
45.00	-3527.	0.	-1388.	826.	0.	-227.	2695.
56.25	-3950.	0.	-1662.	481.	0.	-55.	2827.
67.50	-3427.	0.	-1775.	-662.	0.	4.	3254.
78.75	-2635.	0.	-1714.	-1590.	0.	-159.	3882.
90.00	-2818.	0.	-1637.	-1869.	0.	-294.	4237.
101.25	-2843.	0.	-1694.	-1863.	0.	-241.	4678.
112.50	-2901.	0.	-1935.	-1404.	0.	-181.	5382.
123.75	-3660.	0.	-2145.	-482.	0.	-195.	5691.
135.00	-4083.	0.	-2015.	-263.	0.	-206.	5377.
146.25	-2749.	0.	-1641.	-1259.	0.	-234.	4712.
157.50	-1256.	0.	-1399.	-2022.	0.	-263.	4033.
168.75	-1654.	0.	-1383.	-1537.	0.	-263.	4055.
180.00	-2734.	0.	-1480.	-744.	0.	-306.	4756.
191.25	-3138.	0.	-1635.	-306.	0.	-343.	4836.
202.50	-3677.	0.	-1717.	300.	0.	-324.	4119.
213.75	-4094.	0.	-1612.	874.	0.	-436.	3898.
225.00	-3320.	0.	-1425.	822.	0.	-659.	4197.
236.25	-2559.	0.	-1245.	868.	0.	-675.	4042.
247.50	-2832.	0.	-1030.	1624.	0.	-535.	3629.
258.75	-2787.	0.	-833.	2276.	0.	-522.	3481.
270.00	-2208.	0.	-725.	2609.	0.	-553.	3309.
281.25	-2430.	0.	-644.	3373.	0.	-538.	2878.
292.50	-2856.	0.	-581.	4069.	0.	-616.	2235.
303.75	-2358.	0.	-575.	3756.	0.	-669.	1566.
315.00	-1867.	0.	-546.	3090.	0.	-534.	1397.
326.25	-1921.	0.	-444.	2705.	0.	-448.	1631.
337.50	-1567.	0.	-355.	1950.	0.	-539.	1394.
348.75	-996.	0.	-339.	942.	0.	-586.	795.

RUN 21
 VKTS = 90.0
 V/GR = 0.249
 PLINT 12
 CMGPR = 610.3
 RHU100 = 0.2165
 ALFS,C = 8.3
 CP/S = 0.000871
 CLR/S,R = 0.07364
 CDR/S,R = 0.01288
 CMY/S,R = 0.1446
 CMX/S,R = -0.0031

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR	LR PITCH LINK LOAD
	.1K	.2K	.3K		
300.00	-6829.	-4218.	-2733.	-3505.	-360.
288.75	-6453.	-4271.	-2812.	-4225.	-322.
277.50	-5578.	-3835.	-2575.	-4649.	-314.
266.25	-4560.	-3181.	-2184.	-4553.	-337.
255.00	-4039.	-2711.	-2033.	-4610.	-236.
243.75	-4738.	-2864.	-2183.	-5280.	-161.
232.50	-5616.	-3425.	-2307.	-6023.	-225.
221.25	-4911.	-3441.	-2178.	-6066.	-212.
210.00	-3366.	-2645.	-1865.	-5748.	-70.
198.75	-3009.	-1993.	-1573.	-5927.	17.
187.50	-3662.	-2093.	-1489.	-6707.	37.
176.25	-4030.	-2415.	-1592.	-7153.	38.
165.00	-4244.	-2527.	-1660.	-6723.	-8.
153.75	-4659.	-2629.	-1597.	-6115.	-30.
142.50	-4679.	-2709.	-1493.	-6261.	-4.
131.25	-4285.	-2534.	-1376.	-6866.	-16.
120.00	-4195.	-2311.	-1238.	-6818.	-27.
108.75	-4296.	-2282.	-1134.	-6067.	-4.
97.50	-4395.	-2232.	-1075.	-5777.	-45.
86.25	-3969.	-2106.	-1047.	-6322.	-102.
75.00	-4282.	-2191.	-1098.	-5635.	-67.
63.75	-4571.	-2417.	-1210.	-6022.	-43.
52.50	-4612.	-2500.	-1314.	-5224.	-96.
41.25	-4760.	-2574.	-1422.	-5155.	-142.
30.00	-4879.	-2744.	-1517.	-5507.	-207.
18.75	-4621.	-2721.	-1546.	-5310.	-273.
7.50	-4573.	-2601.	-1627.	-4409.	-237.
356.25	-5279.	-2902.	-1894.	-3775.	-222.
345.00	-5905.	-3459.	-2192.	-4006.	-329.
333.75	-5758.	-3629.	-2330.	-4343.	-348.
322.50	-5710.	-3540.	-2384.	-3961.	-258.
311.25	-6364.	-3764.	-2521.	-3369.	-287.

RUN 21 POINT 13
 VPTS = 90.0 CMEG#R = 610.3 ALFS.C = 8.5 C.R/S,R = 0.08979 CMV/S,R = 0.1735
 V/CP = 0.249 RHJCG = 0.2165 CP/S = 0.001022 CDK/S,R = 0.01528 CMX/S,R = -0.0028

HARMONIC	.IR		.2F		UPPER ROTOR BLADE NORMAL BENDING MOMENT		.3K		.5K	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-952.5		0.0		-342.0		26.5		1390.3	
1	23.6	824.9	0.0	0.0	279.8	26.5			981.6	-1506.6
2	444.6	-264.5	0.0	0.0	121.5	-67.2			-402.2	-149.2
3	115.9	161.5	0.0	0.0	-9.2	64.0			-360.2	190.0
4	515.0	-310.0	0.0	0.0	145.4	-82.5			-505.1	376.5
5	-138.4	340.0	0.0	0.0	-20.3	72.0			69.5	-280.9
6	-19.1	-272.0	0.0	0.0	-18.6	-93.5			98.2	192.0
7	35.2	88.1	0.0	0.0	40.7	-10.1			-75.1	-27.1
8	-49.3	-102.2	0.0	0.0	-9.1	2.2			40.7	51.4
9	350.9	-21.9	0.0	0.0	0.8	-4.5			-219.0	79.3
10	-63.4	-60.5	0.0	0.0	-5.5	11.3			15.3	53.6

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HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .IR		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-303.8		3568.5	
1	0.0	0.0	-81.4	242.2	-1810.0	675.4
2	0.0	0.0	-27.3	0.2	-560.5	-109.1
3	0.0	0.0	-81.6	2.8	80.6	-32.7
4	0.0	0.0	-14.9	-38.2	-39.8	95.3
5	0.0	0.0	-4.3	-103.4	-196.1	-237.9
6	0.0	0.0	8.4	20.7	40.1	39.7
7	0.0	0.0	17.9	61.3	-249.2	-129.3
8	0.0	0.0	-39.9	-1.7	-0.8	99.1
9	0.0	0.0	1.6	25.8	-27.6	-61.1
10	0.0	0.0	27.5	-21.5	-54.9	116.6

PUN 21 POINT 13 UMEG*R = 610.3 ALFS,C = 8.5 CLR/S,R = 0.08979 CMY/S,R = 0.1735
 VKTS = 90.0 RHJ100 = 0.2165 CP/S = 0.001022 CDR/S,R = 0.01528 CMX/S,R = -0.0028
 V/CR = 0.249

HARMONIC	.1R			.2R			.3R			.6R		
	COS	SIN		COS	SIN		COS	SIN		COS	SIN	
0	-3037.4			-1602.4			-936.2			-459.6		
1	-256.2	-423.9		-69.1	-84.2		47.9	187.4		125.6	275.4	
2	268.5	441.2		177.8	246.4		62.0	155.7		-40.3	24.8	
3	51.1	-130.0		11.5	-95.8		12.5	-53.5		15.4	-26.2	
4	327.8	58.4		202.3	-35.5		95.2	8.6		-62.7	-5.1	
5	-232.4	-213.1		-211.9	-38.7		-96.6	-24.0		39.8	22.4	
6	-62.4	457.2		101.2	244.8		23.6	123.9		-3.1	-51.7	
7	227.0	34.0		118.6	-55.1		46.2	1.3		-24.0	-1.6	
8	-68.3	-34.6		-14.6	-4.9		13.2	-5.7		0.6	-2.0	
9	99.4	19.9		24.4	-22.5		-5.2	7.9		-12.7	0.8	
10	54.1	-13.3		11.6	-20.8		9.0	1.1		-6.0	4.0	

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HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5397.3		-132.0	
1	1324.1	-822.9	-120.2	121.8
2	-251.7	-239.5	31.1	12.9
3	-26.7	23.9	-27.9	-6.5
4	-19.3	37.5	1.6	2.3
5	39.0	-20.7	-19.5	-11.5
6	-46.1	-37.9	33.3	5.4
7	511.4	-188.7	14.3	-13.9
8	-2.2	5.6	10.0	5.7
9	-20.4	24.7	14.8	2.6
10	9.4	-1.2	-5.1	-25.1

PIN	21	POINT	13	CMRG#R =	61C.3	ALFS.C =	8.5	CLR/S,R =	C.08979	CMY/S,R =	0.1735
WTS =	90.0			RMJUG =	0.2165	CP/S =	0.001022	CLR/S,R =	0.01528	CMY/S,R =	-0.00028
V/C =	0.249										
	UPPER ECTOR	BLADE	NORMAL	BENDING	MOMENT	UK	EDGEWISE	UK	PITCH	UPPER ROTOR	
	.1R	.2K	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS				
PSI	262.	0.	183.	1014.	0.	-498.	750.				
0.00	-311.	0.	60.	1529.	0.	-475.	1236.				
11.25	-593.	0.	-76.	1659.	0.	-426.	1895.				
22.50	-486.	0.	-142.	1487.	0.	-323.	2463.				
33.75	-535.	0.	-194.	1697.	0.	-133.	2994.				
45.00	-1415.	0.	-324.	1678.	0.	125.	3312.				
56.25	-1004.	0.	-427.	778.	0.	177.	3735.				
67.50	-118.	0.	-373.	-263.	0.	-83.	4405.				
78.75	45.	0.	-263.	-657.	0.	-267.	4842.				
90.00	-213.	0.	-289.	-594.	0.	-159.	5220.				
101.25	-204.	0.	-511.	-261.	0.	-25.	5674.				
112.50	-635.	0.	-772.	456.	0.	-22.	6184.				
123.75	-1393.	0.	-765.	861.	0.	-83.	5846.				
135.00	-634.	0.	-423.	49.	0.	-160.	5258.				
146.25	1175.	0.	-116.	-1092.	0.	-164.	4539.				
157.50	1186.	0.	-151.	-884.	0.	-122.	4418.				
168.75	-512.	0.	-400.	260.	0.	-202.	5155.				
180.00	-1470.	0.	-639.	844.	0.	-278.	5420.				
191.25	-1761.	0.	-792.	1048.	0.	-207.	4399.				
202.50	-2358.	0.	-813.	1500.	0.	-299.	3741.				
213.75	-2255.	0.	-724.	1600.	0.	-609.	4157.				
225.00	-1477.	0.	-623.	1397.	0.	-674.	4228.				
236.25	-1601.	0.	-523.	1682.	0.	-479.	3721.				
247.50	-2089.	0.	-411.	2702.	0.	-424.	3511.				
258.75	-1742.	0.	-343.	3086.	0.	-468.	3365.				
270.00	-1645.	0.	-313.	3648.	0.	-461.	2951.				
281.25	-2295.	0.	-283.	4458.	0.	-550.	2490.				
292.50	-2257.	0.	-295.	4381.	0.	-630.	1872.				
303.75	-1538.	0.	-303.	3586.	0.	-491.	1433.				
315.00	-1273.	0.	-166.	3031.	0.	-362.	1715.				
326.25	-943.	0.	65.	2324.	0.	-436.	1850.				
337.50	-48.	0.	203.	1284.	0.	-513.	1161.				

RUN 21 POINT 13
 VKTS = 90.0 GMEGRK = 610.3 ALFS,C = 8.5 CLR/S,R = 0.08979 CMY/S,R = 0.1735
 V/CP = 0.249 RHU100 = 0.2165 CP/S = 0.001022 CDR/S,R = 0.01528 CMX/S,R = -0.0028

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	-3857.	-1978.	-1317.	-579.	-3235.		-306.
288.75	-3976.	-2333.	-1487.	-613.	-3951.		-319.
277.50	-3273.	-2133.	-1373.	-723.	-4516.		-296.
266.25	-2131.	-1464.	-1023.	-829.	-4385.		-319.
255.00	-1472.	-895.	-811.	-856.	-4383.		-255.
243.75	-2178.	-1026.	-963.	-738.	-5276.		-143.
232.50	-3350.	-1688.	-1204.	-553.	-6292.		-172.
221.25	-3165.	-1948.	-1182.	-513.	-6376.		-206.
210.00	-1810.	-1412.	-937.	-651.	-5982.		-82.
198.75	-1108.	-766.	-705.	-781.	-6250.		38.
187.50	-1690.	-713.	-646.	-777.	-7140.		64.
176.25	-2659.	-1184.	-817.	-677.	-7568.		83.
165.00	-3293.	-1707.	-1082.	-562.	-7044.		48.
153.75	-3640.	-1993.	-1199.	-465.	-6354.		-28.
142.50	-3859.	-2075.	-1131.	-384.	-6449.		-11.
131.25	-3816.	-2052.	-1023.	-320.	-7021.		33.
120.00	-3551.	-1918.	-931.	-280.	-6920.		-0.
108.75	-3485.	-1754.	-829.	-235.	-6027.		-17.
97.50	-3612.	-1706.	-738.	-175.	-5540.		-13.
86.25	-3473.	-1684.	-686.	-136.	-6000.		-70.
75.00	-3277.	-1595.	-672.	-129.	-6368.		-95.
63.75	-3448.	-1601.	-693.	-108.	-5755.		-41.
52.50	-3612.	-1707.	-729.	-104.	-4861.		-32.
41.25	-3403.	-1700.	-751.	-150.	-4797.		-96.
30.00	-3125.	-1584.	-727.	-216.	-5299.		-175.
18.75	-2849.	-1443.	-649.	-299.	-5217.		-242.
7.50	-2579.	-1274.	-634.	-397.	-4370.		-232.
356.25	-2842.	-1300.	-804.	-425.	-3769.		-195.
345.00	-3398.	-1638.	-1027.	-393.	-3978.		-271.
333.75	-3262.	-1821.	-1078.	-445.	-4310.		-349.
322.50	-2837.	-1616.	-1022.	-576.	-3979.		-283.
311.25	-3138.	-1569.	-1091.	-613.	-3301.		-239.

ORIGINAL PAGE IS
OF POOR QUALITY

RUN 21 POINT 14
VPTS = 90.1
V/C/R = 0.250
OMEGA R = 608.3
RHU100 = 0.2161
ALFS,C = 8.8
CP/S = 0.002092
CLR/S,R = 0.11858
CDR/S,R = 0.01911
CMY/S,R = 0.2227
CMX/S,R = -0.0034

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HAPACNIC	.1P		.2P		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	599.9	-2902.0	1009.3	-1869.2	837.2	-970.8	-221.5	142.1
1	557.9	251.5	352.2	137.4	357.2	97.1	183.4	26.7
2	222.9	-103.8	116.0	-69.6	12.1	-47.9	-73.5	-28.0
3	11.5	325.1	-10.0	159.1	6.0	105.6	32.1	-56.4
4	138.2	-323.0	152.8	-114.5	56.8	-38.1	-43.8	36.3
5	-138.3	589.8	-165.2	309.7	-77.2	165.4	32.4	-63.6
6	-8.9	16.5	162.5	-58.9	42.1	8.8	-9.1	-3.7
7	269.7	-113.9	151.7	-23.1	73.3	-0.3	-28.2	8.0
8	-61.7	-196.2	-45.3	-80.2	12.8	4.6	2.2	16.7
9	79.6	-3.5	-30.3	-17.8	11.0	-10.4	-1.2	3.0
17	28.2		13.2		14.5		-5.9	

LOWER ROTOR EDGEWISE
BENDING MOMENT .1P

HAPACNIC

	.1P	
	COS	SIN
0	-5742.1	-394.8
1	2201.8	-118.2
2	-560.4	118.1
3	-32.3	3.6
4	-26.0	-47.6
5	61.1	-24.7
6	-55.8	-14.0
7	747.7	24.6
8	-9.4	4.0
9	22.8	19.7
10	12.4	

LOWER ROTOR
PITCH LINK LOAD

	PITCH LINK LOAD	
	COS	SIN
0	-92.0	124.1
1	-141.9	18.0
2	33.2	-0.6
3	-28.9	14.0
4	4.9	-22.6
5	-17.5	-3.3
6	50.5	-27.9
7	18.8	16.4
8	-1.8	-16.9
9	18.1	-19.3
10	-2.6	

PUN 21 VKTS = 90.1 POINT 14 CAGE#R = 608.3 ALFS,C = 8.8 CLR/S,R = 0.11858 CMY/S,R = 0.2227
 V/CR = 0.250 RHJ100 = 0.2161 CP/S = 0.002092 CDR/S,R = 0.01911 CMX/S,R = -0.0034

PSI	UPPER ROTOR BLADE NORMAL		BENDING MOMENT		UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
	.1R	.2F	.3R	.6R			
0.00	2529.	0.	1353.	1606.	0.	-416.	1575.
11.25	2324.	0.	1335.	2398.	0.	-363.	2428.
22.50	2523.	0.	1394.	2698.	0.	-283.	3111.
33.75	3003.	0.	1662.	2906.	0.	-140.	3635.
45.00	3416.	0.	1977.	3221.	0.	139.	4179.
56.25	3842.	0.	2077.	3079.	0.	371.	4405.
67.50	4380.	0.	2093.	2524.	0.	240.	4899.
78.75	4996.	0.	2239.	1988.	0.	-126.	5691.
90.00	5307.	0.	2380.	1658.	0.	-247.	5810.
101.25	5046.	0.	2299.	1810.	0.	-5.	5790.
112.50	4564.	0.	1991.	2486.	0.	247.	6449.
123.75	3940.	0.	1661.	3070.	0.	209.	6698.
135.00	3329.	0.	1642.	2800.	0.	-30.	5884.
146.25	3901.	0.	1946.	1462.	0.	-104.	4891.
157.50	5296.	0.	2051.	59.	0.	106.	4289.
168.75	4815.	0.	1631.	113.	0.	220.	4500.
180.00	2159.	0.	973.	1360.	0.	12.	5473.
191.25	89.	0.	407.	2078.	0.	-155.	5562.
202.50	-612.	0.	38.	1969.	0.	-80.	4295.
213.75	-975.	0.	-67.	1840.	0.	-155.	3645.
225.00	-747.	0.	5.	1650.	0.	-515.	4101.
236.25	-216.	0.	51.	1524.	0.	-702.	4255.
247.50	-676.	0.	57.	2164.	0.	-504.	4078.
258.75	-1414.	0.	55.	3174.	0.	-270.	4066.
270.00	-1290.	0.	16.	3877.	0.	-292.	3835.
281.25	-1295.	0.	39.	4618.	0.	-470.	3535.
292.50	-1733.	0.	155.	5178.	0.	-567.	3089.
303.75	-1399.	0.	202.	4792.	0.	-494.	2156.
315.00	-547.	0.	257.	3970.	0.	-371.	1790.
326.25	46.	0.	575.	3272.	0.	-334.	2703.
337.50	991.	0.	1025.	2228.	0.	-374.	2960.
348.75	2186.	0.	1293.	1324.	0.	-416.	1889.

RUN 21 POINT 14
 VKTS = 90.1 OMEG* π R = 608.3 ALFS,C = 8.8 CL π R/S, π R = 0.11858 CMY/S, π R = 0.2227
 V/OR = 0.250 RHO100 = 0.2161 CP/S = 0.002092 CDR/S, π R = 0.01911 CMX/S, π R = -0.0034

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT				LR EDGEWISE BENDING .1K	LR PITCH LINK LOAD
	.1R	.2R	.3R	.6R		
300.00	3059.	2857.	1789.	-272.	-3577.	-255.
288.75	2406.	2362.	1519.	-235.	-4505.	-255.
277.50	3024.	2386.	1669.	-318.	-4846.	-251.
266.25	4037.	2969.	1874.	-435.	-4517.	-295.
255.00	3934.	3245.	1943.	-427.	-4815.	-231.
243.75	2696.	2695.	1633.	-292.	-6269.	-85.
232.50	1539.	1807.	1183.	-191.	-7579.	-101.
221.25	1514.	1434.	1052.	-260.	-7614.	-177.
210.00	2456.	1785.	1207.	-466.	-7186.	-56.
198.75	2876.	2184.	1230.	-646.	-7720.	140.
187.50	1582.	1818.	932.	-658.	-8976.	182.
176.25	-529.	699.	426.	-513.	-9308.	121.
165.00	-1673.	-320.	-56.	-367.	-8182.	71.
153.75	-1789.	-681.	-278.	-314.	-7153.	48.
142.50	-1921.	-724.	-244.	-288.	-7441.	48.
131.25	-2035.	-774.	-165.	-249.	-7957.	54.
120.00	-1886.	-703.	-130.	-221.	-7233.	70.
108.75	-2215.	-679.	-118.	-152.	-5879.	79.
97.50	-2909.	-965.	-133.	-13.	-5433.	14.
86.25	-2689.	-1093.	-108.	66.	-5891.	-82.
75.00	-1810.	-703.	15.	42.	-5891.	-69.
63.75	-1626.	-355.	153.	44.	-4831.	8.
52.50	-1695.	-335.	273.	75.	-3827.	10.
41.25	-904.	-90.	449.	24.	-4105.	-50.
30.00	138.	515.	710.	-67.	-4974.	-142.
18.75	717.	1055.	1040.	-109.	-4796.	-234.
7.50	1313.	1475.	1313.	-130.	-3730.	-215.
356.25	1792.	1777.	1311.	-124.	-3438.	-146.
345.00	1616.	1740.	1170.	-58.	-4212.	-231.
333.75	1705.	1716.	1328.	-52.	-4621.	-359.
322.50	2830.	2271.	1753.	-186.	-3972.	-316.
311.25	3641.	2931.	1948.	-299.	-3269.	-238.

FUN	21	PUNT	15					
VKTS	=	90.0	CMEG#P	=	610.2	ALFS,C	=	9.0
V/CR	=	0.249	NHJICO	=	0.2161	CP/S	=	0.003825
						CLR/S,R	=	0.14057
						CDK/S,R	=	0.02179
						CMY/S,R	=	0.2597
						CMX/S,R	=	-0.0059

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HAP MONIC	.1R		.2P		.3R		.6R	
	CCS	SIN	CCS	SIN	CCS	SIN	CCS	SIN
0	3710.8		0.0		1970.8		3296.3	
1	737.7	5582.5	0.0	0.0	481.3	2283.2	1003.3	311.4
2	108.3	-574.9	0.0	0.0	-94.3	-298.5	-1067.1	-497.7
3	-47.7	168.4	0.0	0.0	-78.2	96.1	-393.4	395.3
4	-1.8	-663.0	0.0	0.0	-33.5	-208.4	70.8	683.1
5	-127.0	295.2	0.0	0.0	-8.8	34.8	55.0	-271.9
6	-63.8	-499.6	0.0	0.0	-65.2	-171.8	211.9	313.5
7	41.6	214.4	0.0	0.0	55.5	-61.1	-85.9	-53.4
8	-178.7	-215.1	0.0	0.0	-12.5	32.5	167.0	98.8
9	282.2	7.7	0.0	0.0	-5.1	5.1	-108.9	58.5
10	-124.7	-138.5	0.0	0.0	-11.7	33.3	63.7	99.3

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UPPER ROTOR BENDING MOMENT .1R	UPPER ROTOR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
COS	COS	COS
SIN	SIN	SIN
1.000000	1.000000	1.000000
0.999999	0.999999	0.999999
0.999998	0.999998	0.999998
0.999997	0.999997	0.999997
0.999996	0.999996	0.999996
0.999995	0.999995	0.999995
0.999994	0.999994	0.999994
0.999993	0.999993	0.999993
0.999992	0.999992	0.999992
0.999991	0.999991	0.999991
0.999990	0.999990	0.999990
0.999989	0.999989	0.999989
0.999988	0.999988	0.999988
0.999987	0.999987	0.999987
0.999986	0.999986	0.999986
0.999985	0.999985	0.999985
0.999984	0.999984	0.999984
0.999983	0.999983	0.999983
0.999982	0.999982	0.999982
0.999981	0.999981	0.999981
0.999980	0.999980	0.999980
0.999979	0.999979	0.999979
0.999978	0.999978	0.999978
0.999977	0.999977	0.999977
0.999976	0.999976	0.999976
0.999975	0.999975	0.999975
0.999974	0.999974	0.999974
0.999973	0.999973	0.999973
0.999972	0.999972	0.999972
0.999971	0.999971	0.999971
0.999970	0.999970	0.999970
0.999969	0.999969	0.999969
0.999968	0.999968	0.999968
0.999967	0.999967	0.999967
0.999966	0.999966	0.999966
0.999965	0.999965	0.999965
0.999964	0.999964	0.999964
0.999963	0.999963	0.999963
0.999962	0.999962	0.999962
0.999961	0.999961	0.999961
0.999960	0.999960	0.999960
0.999959	0.999959	0.999959
0.999958	0.999958	0.999958
0.999957	0.999957	0.999957
0.999956	0.999956	0.999956
0.999955	0.999955	0.999955
0.999954	0.999954	0.999954
0.999953	0.999953	0.999953
0.999952	0.999952	0.999952
0.999951	0.999951	0.999951
0.999950	0.999950	0.999950
0.999949	0.999949	0.999949
0.999948	0.999948	0.999948
0.999947	0.999947	0.999947
0.999946	0.999946	0.999946
0.999945	0.999945	0.999945
0.999944	0.999944	0.999944
0.999943	0.999943	0.999943
0.999942	0.999942	0.999942
0.999941	0.999941	0.999941
0.999940	0.999940	0.999940
0.999939	0.999939	0.999939
0.999938	0.999938	0.999938
0.999937	0.999937	0.999937
0.999936	0.999936	0.999936
0.999935	0.999935	0.999935
0.999934	0.999934	0.999934
0.999933	0.999933	0.999933
0.999932	0.999932	0.999932
0.999931	0.999931	0.999931
0.999930	0.999930	0.999930
0.999929	0.999929	0.999929
0.999928	0.999928	0.999928
0.999927	0.999927	0.999927
0.999926	0.999926	0.999926
0.999925	0.999925	0.999925
0.999924	0.999924	0.999924
0.999923	0.999923	0.999923
0.999922	0.999922	0.999922
0.999921	0.999921	0.999921
0.999920	0.999920	0.999920
0.999919	0.999919	0.999919
0.999918	0.999918	0.999918
0.999917	0.999917	0.999917
0.999916	0.999916	0.999916
0.999915	0.999915	0.999915
0.999914	0.999914	0.999914
0.999913	0.999913	0.999913
0.999912	0.999912	0.999912
0.999911	0.999911	0.999911
0.		

HARMONIC	0	1	2	3	4	5	6	7	8	9	10
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	-70.0	-147.6	44.8	-89.3	-62.5	-19.1	34.4	60.0	-41.1	39.7	-6.7
	373.2	-36.8	61.7	-17.9	-138.7	15.8	133.0	-7.6	-4.6	13.7	
	4449.6	-974.5	-660.1	43.7	94.1	-339.1	24.5	-423.0	42.7	4.9	-39.8
	1447.1	219.5	-12.3	35.7	-309.2	113.7	-27.4	205.1	109.5	266.8	

RUN 21
VKTS =
V/R =

POINT 15
90.0
0.249

UMEG#R = 610.2
RHU100 = 0.2161

ALFS,C = 9.0
CP/S = 0.003825

CLR/S,R = 0.14057
CDR/S,R = 0.02179

CMY/S,R = 0.2597
CMX/S,R = -0.0059

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	3598.4		3159.5		2292.7		-23.4	
1	282.0	-5208.2	4.1	-3458.0	122.6	-2044.5	143.1	-0.1
2	62.5	162.1	-0.1	98.1	-55.0	56.9	-98.5	8.6
3	-39.6	-188.8	-53.2	-103.7	-17.4	-66.1	30.7	-43.0
4	-60.9	609.9	81.8	382.6	-0.6	210.1	-8.2	-103.2
5	10.3	-27.7	-13.7	6.9	-29.1	36.7	5.6	6.9
6	-75.4	657.6	149.3	368.0	27.0	194.2	-1.3	-71.7
7	224.7	-19.5	114.0	-59.4	60.3	7.8	-22.0	-1.9
8	-131.4	-298.6	-107.0	-64.0	19.2	-8.6	16.7	22.3
9	203.0	-417.6	-55.1	-177.7	18.2	16.5	76.0	47.8
10	37.3	-76.8	5.1	-40.6	29.5	-8.3	13.7	0.5

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

LOWER ROTOR PITCH LINK LOAD

HARMONIC

	COS	SIN	COS	SIN
0	-6061.4		-34.4	
1	3072.0	349.4	-179.2	154.8
2	-542.2	97.5	3.6	20.3
3	-42.2	38.5	-32.1	-38.6
4	1.2	7.2	23.5	9.5
5	-14.6	30.8	1.5	-7.3
6	-62.2	-54.4	42.0	12.8
7	546.4	203.1	16.2	-47.7
8	-8.2	27.4	-6.8	9.8
9	56.6	66.6	30.1	1.6
10	37.5	32.3	-15.8	-3.7

RUN 21
VKTS =
V/OR =

PCINT 15
90.0
0.249

UMEG*P = 610.2
RHU100 = 0.2161

ALFS,C = 9.0
CP/S = 0.003825

CLR/S,R = 0.14057
CDR/S,R = 0.02179
CMY/S,R = 0.2597
CMX/S,R = -0.0059

PS?	UPPER ROTOR BLADE NORMAL			BENDING MOMENT		UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
	.1R	.25	.3K	.6K				
0.00	4307.	0.	2198.	3138.	0.	-257.	2223.	
11.25	4522.	0.	2369.	3886.	0.	-172.	3504.	
22.50	5803.	0.	2747.	3735.	0.	-190.	3870.	
33.75	7152.	0.	3412.	3863.	0.	-61.	4363.	
45.00	7885.	0.	4041.	4332.	0.	264.	5325.	
56.25	8418.	0.	4183.	4417.	0.	503.	5476.	
67.50	8927.	0.	4075.	4204.	0.	424.	5641.	
78.75	9212.	0.	4188.	4095.	0.	60.	6472.	
90.00	9113.	0.	4384.	4010.	0.	-211.	6549.	
101.25	8873.	0.	4301.	4004.	0.	23.	6215.	
112.50	8776.	0.	3912.	4228.	0.	497.	6752.	
123.75	8053.	0.	3483.	4478.	0.	546.	7014.	
135.00	6607.	0.	3352.	4138.	0.	256.	6131.	
146.25	6522.	0.	3436.	2647.	0.	235.	5165.	
157.50	7684.	0.	3133.	955.	0.	405.	4440.	
168.75	6436.	0.	2255.	964.	0.	293.	4555.	
180.00	2593.	0.	1309.	2204.	0.	55.	5599.	
191.25	156.	0.	596.	2391.	0.	44.	5689.	
202.50	-255.	0.	66.	1539.	0.	72.	4197.	
213.75	-840.	0.	-201.	1173.	0.	-133.	3533.	
225.00	-1245.	0.	-244.	1172.	0.	-439.	4217.	
236.25	-1030.	0.	-306.	1263.	0.	-594.	4389.	
247.50	-1564.	0.	-379.	2186.	0.	-519.	4107.	
258.75	-2290.	0.	-333.	3572.	0.	-336.	4142.	
270.00	-1893.	0.	-192.	4498.	0.	-281.	3975.	
281.25	-1450.	0.	63.	5228.	0.	-432.	3578.	
292.50	-1420.	0.	374.	5697.	0.	-565.	2951.	
303.75	-534.	0.	565.	5210.	0.	-476.	1902.	
315.00	889.	0.	818.	4214.	0.	-275.	1920.	
326.25	1955.	0.	1385.	3323.	0.	-228.	3282.	
337.50	3166.	0.	1938.	2439.	0.	-354.	3296.	
348.75	4218.	0.	2138.	2224.	0.	-393.	1975.	

RUN 21
VKTS =
V/OR =

POINT 15
90.0
0.249

OMEGAR = 610.2
RHO100 = 0.2161

ALFS,C = 9.0
CP/S = 0.003825

CLR/S,R = 0.14057
CDR/S,R = 0.02179

CMY/S,R = 0.2597
CNX/S,R = -0.0059

PSI	LOWER ROTOR BLADE NORMAL		BENDING MOMENT		LR EDGEWISE BENDING -IR	LR PITCH	
	.1R	.2R	.3R	.6R		LINK LOAD	
300.00	8758.	6798.	4328.	-47.	-4666.	-193.	
288.75	7806.	6286.	4239.	73.	-5362.	-206.	
277.50	8286.	6190.	4191.	48.	-5656.	-252.	
266.25	8927.	6577.	4290.	-27.	-5717.	-284.	
255.00	8609.	6658.	4358.	14.	-6249.	-176.	
243.75	7735.	6176.	4067.	96.	-7560.	-12.	
232.50	6818.	5487.	3631.	91.	-8625.	-36.	
221.25	6568.	5110.	3498.	-23.	-8611.	-120.	
210.00	7162.	5237.	3501.	-231.	-8449.	43.	
198.75	6947.	5270.	3222.	-415.	-9236.	272.	
187.50	4663.	4372.	2639.	-389.	-10258.	256.	
176.25	1944.	2727.	1907.	-211.	-10092.	149.	
165.00	808.	1460.	1225.	-144.	-8932.	141.	
153.75	579.	1038.	868.	-195.	-8342.	130.	
142.50	-76.	817.	804.	-175.	-8702.	104.	
131.25	-548.	479.	736.	-127.	-8584.	144.	
120.00	-439.	373.	584.	-140.	-7258.	162.	
108.75	-1059.	250.	447.	-60.	-5842.	136.	
97.50	-2167.	-271.	373.	133.	-5310.	164.	
86.25	-1723.	-446.	393.	176.	-5258.	184.	
75.00	-544.	101.	442.	85.	-4899.	113.	
63.75	-1038.	278.	451.	128.	-3969.	53.	
52.50	-1608.	-61.	590.	209.	-3094.	35.	
41.25	276.	470.	981.	67.	-3239.	-50.	
30.00	2485.	1827.	1478.	-127.	-3929.	-183.	
18.75	2831.	2637.	1991.	-112.	-3692.	-234.	
7.50	3254.	2960.	2395.	-10.	-2925.	-184.	
356.25	4443.	3456.	2445.	57.	-3265.	-150.	
345.00	4543.	3694.	2408.	182.	-4266.	-222.	
333.75	4704.	3825.	2890.	270.	-4320.	-326.	
322.50	7022.	4910.	3736.	126.	-3765.	-320.	
311.25	9184.	6417.	4260.	-72.	-3891.	-235.	

CHY/S,R = 0.1665
CMX/S,R = -0.0004

CLR/S,R = 0.06855
CDR/S,R = 0.01593

ALFS,C = 10.9
CP/S = 0.000251

RUN 21 POINT 16
VPTS = 90.2 LMEGRK = 627.9
V/OR = 0.242 RHL100 = 0.2161

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1697.0		0.0		-784.5		903.2	
1	590.6	-1050.0	0.0	0.0	630.0	-864.5	1530.7	-2299.3
2	172.8	-336.0	0.0	0.0	90.8	-97.5	-460.6	-151.1
3	210.3	164.9	0.0	0.0	51.4	46.0	-385.4	134.1
4	793.4	-96.1	0.0	0.0	219.0	-12.5	-794.5	177.3
5	-304.9	246.8	0.0	0.0	-59.3	31.3	171.9	-130.5
6	-12.7	-161.4	0.0	0.0	-16.5	-56.1	52.6	98.2
7	4.4	122.8	0.0	0.0	39.0	-0.2	-44.8	-53.2
8	-114.5	12.9	0.0	0.0	28.6	18.9	63.7	-34.3
9	101.5	250.3	0.0	0.0	7.2	-3.1	-97.8	-143.6
10	-68.6	-27.8	0.0	0.0	8.4	7.7	8.5	8.2

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HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		84.3		3506.5	
1	0.0	0.0	-126.1	249.3	-2476.7	-127.9
2	0.0	0.0	-7.0	-20.7	-596.4	-144.8
3	0.0	0.0	-85.6	-27.7	56.6	-142.8
4	0.0	0.0	7.2	-42.9	-198.1	144.8
5	0.0	0.0	33.9	-129.5	-98.8	-292.1
6	0.0	0.0	33.0	13.2	-4.1	98.9
7	0.0	0.0	-20.8	52.1	-167.4	-254.3
8	0.0	0.0	0.0	-4.0	204.0	26.6
9	0.0	0.0	-5.9	6.9	-2.4	-44.7
10	0.0	0.0	18.2	-0.9	-87.0	16.9

RUN 21
VKTS =
V/CR =

PUNT 16
90.2
0.242

OMEGA R = 627.9
RHU100 = 0.2161

ALFS,C = 10.9
CP/S = 0.000251

CLR/S,R = 0.06855
CNR/S,R = 0.01593

CMY/S,R = 0.1665
CMX/S,R = -0.0004

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.4R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-6936.1		-4373.6		-2821.3		-717.1	
1	-710.2	449.6	-343.7	519.8	-132.4	559.5	104.9	286.7
2	507.4	514.7	379.0	260.1	216.7	155.1	43.3	-4.6
3	199.9	-50.8	125.4	-57.3	71.4	-34.0	11.8	-51.8
4	276.2	-28.3	161.8	-81.8	86.1	-26.2	-51.1	3.0
5	-330.1	-142.6	-219.2	13.2	-101.5	-3.8	41.7	11.6
6	-0.5	380.6	111.9	199.6	33.7	105.3	-7.1	-36.7
7	174.9	-68.4	65.0	-85.4	40.0	-16.9	-15.2	9.0
8	-138.1	-45.7	-50.7	12.7	12.7	-13.6	11.2	2.3
9	77.8	53.5	37.0	-2.7	-5.1	4.1	-7.1	-3.3
10	-0.5	-10.1	-3.9	11.3	0.2	15.8	0.6	-0.4

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	LOWER ROTOR BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5609.3		-187.4	
1	668.0	-1213.0	-84.2	162.9
2	-134.7	-138.9	31.9	16.6
3	-37.4	-116.6	-13.3	18.6
4	-13.3	23.1	1.0	-1.8
5	29.1	-45.5	-32.4	14.2
6	-1.5	-40.6	25.7	3.7
7	52.1	-222.1	-1.4	-22.0
8	26.2	0.7	-1.0	12.1
9	47.8	-7.9	-17.7	-12.5
10	10.8	-18.3	24.8	-5.8

RUN 21 POINT 16
 VKTS = 96.2 OMEG*R = 627.9 ALFS,C = 10.9 CMY/S,R = 0.1665
 V/OR = 0.242 RHU100 = 0.2161 CP/S = 0.000251 CDR/S,R = 0.01593 CMX/S,R = -D.0004

	UPPER ROTOR			UR EDGEMISE		UR PITCH		UPPER ROTOR	
	BLADE	NORMAL	BENDING	MOMENT	BENDING .1R	LINK LOAD	SHAFT STRESS		
	.1R	.2R	.3R	.6R					
PSI									
0.00	-135.	0.	214.	947.	0.	-69.	136.		
11.25	-115.	0.	-114.	614.	0.	-138.	199.		
22.50	-1124.	0.	-546.	1023.	0.	-174.	213.		
33.75	-2375.	0.	-853.	1327.	0.	-64.	1005.		
45.00	-2965.	0.	-1128.	1142.	0.	187.	1579.		
56.25	-3406.	0.	-1469.	790.	0.	468.	1597.		
67.50	-3679.	0.	-1689.	97.	0.	568.	1744.		
78.75	-3015.	0.	-1650.	-1140.	0.	378.	2574.		
90.00	-2150.	0.	-1502.	-2137.	0.	150.	3532.		
101.25	-2194.	0.	-1494.	-2215.	0.	171.	3699.		
112.50	-2619.	0.	-1728.	-1716.	0.	347.	4176.		
123.75	-3044.	0.	-2010.	-1068.	0.	447.	5280.		
135.00	-3665.	0.	-2028.	-561.	0.	400.	5716.		
146.25	-3327.	0.	-1763.	-858.	0.	263.	4973.		
157.50	-1539.	0.	-1457.	-1854.	0.	196.	4156.		
168.75	-510.	0.	-1238.	-2192.	0.	282.	4378.		
180.00	-1318.	0.	-1122.	-1402.	0.	340.	5514.		
191.25	-2143.	0.	-1141.	-516.	0.	253.	6254.		
202.50	-2255.	0.	-1193.	130.	0.	166.	5878.		
213.75	-2597.	0.	-1109.	1054.	0.	89.	5474.		
225.00	-2649.	0.	-889.	1819.	0.	-103.	5784.		
236.25	-1607.	0.	-613.	1820.	0.	-272.	5798.		
247.50	-600.	0.	-280.	1823.	0.	-241.	5197.		
258.75	-486.	0.	58.	2508.	0.	-122.	4942.		
270.00	-469.	0.	262.	3281.	0.	-55.	4867.		
281.25	-313.	0.	270.	3847.	0.	-66.	4227.		
292.50	-717.	0.	165.	4631.	0.	-173.	3523.		
303.75	-1340.	0.	103.	5186.	0.	-261.	3130.		
315.00	-1140.	0.	145.	4646.	0.	-176.	2555.		
326.25	-370.	0.	198.	3468.	0.	-37.	1915.		
337.50	-127.	0.	223.	2584.	0.	-14.	1534.		
348.75	-314.	0.	271.	1825.	0.	-43.	955.		

RUN 21
 VKTS =
 V/CR =

POINT 16
 90.2
 0.242

OMEG*R = 627.9
 RHU100 = 0.2161

ALFS,C = 10.9
 CP/S = 0.000251

CLR/S,R = 0.06855
 CDR/S,R = 0.01593

CMY/S,R = 0.1665
 CMX/S,R = -0.0004

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2K	.3R				
300.00	-8863.	-5578.	-3713.	-907.	-3839.	-359.	
288.75	-9071.	-5908.	-3959.	-969.	-3872.	-379.	
277.50	-8581.	-5826.	-3866.	-1056.	-4216.	-439.	
266.25	-7298.	-5141.	-3420.	-1168.	-4592.	-413.	
255.00	-6092.	-4304.	-3078.	-1219.	-4657.	-289.	
243.75	-6226.	-4061.	-3083.	-1107.	-4711.	-235.	
232.50	-7264.	-4507.	-3186.	-892.	-5142.	-258.	
221.25	-7266.	-4810.	-3128.	-775.	-5593.	-268.	
210.00	-5884.	-4310.	-2873.	-835.	-5667.	-265.	
198.75	-4913.	-3505.	-2529.	-923.	-5717.	-173.	
187.50	-5240.	-3264.	-2327.	-908.	-6141.	0.	
176.25	-5886.	-3561.	-2387.	-829.	-6700.	28.	
165.00	-6213.	-3846.	-2539.	-751.	-6939.	-73.	
153.75	-6538.	-4014.	-2599.	-666.	-6814.	-49.	
142.50	-6808.	-4160.	-2569.	-587.	-6692.	12.	
131.25	-6704.	-4151.	-2498.	-551.	-6826.	-64.	
120.00	-6534.	-4026.	-2440.	-537.	-6974.	-84.	
108.75	-6659.	-4019.	-2422.	-503.	-6801.	4.	
97.50	-6823.	-4079.	-2391.	-467.	-6457.	-29.	
86.25	-6810.	-4069.	-2359.	-453.	-6357.	-123.	
75.00	-6852.	-4104.	-2416.	-439.	-6542.	-96.	
63.75	-7031.	-4224.	-2495.	-424.	-6581.	-67.	
52.50	-7087.	-4272.	-2497.	-433.	-6197.	-101.	
41.25	-6914.	-4219.	-2490.	-466.	-5807.	-88.	
30.00	-6679.	-4129.	-2499.	-507.	-5905.	-91.	
18.75	-6538.	-4010.	-2458.	-549.	-6061.	-181.	
7.50	-6635.	-3986.	-2477.	-578.	-5568.	-242.	
356.25	-7040.	-4214.	-2688.	-585.	-4774.	-264.	
345.00	-7503.	-4576.	-2968.	-602.	-4460.	-324.	
333.75	-7738.	-4846.	-3167.	-664.	-4497.	-365.	
322.50	-7920.	-5010.	-3302.	-756.	-4352.	-362.	
311.25	-8344.	-5225.	-3457.	-841.	-4047.	-364.	

RUN 21 POINT 17 CMV/S,R = 0.1950
 VRTS = 91.1 UMEG#R = 679.0 ALFS,C = 11.1 CLR/S,R = 0.08018
 V/CP = 0.226 RHU100 = 0.2161 CP/S = 0.000208 CUR/S,R = 0.01852

HARMONIC	UPPER ROTOR BLADE NORMAL BENDING MOMENT		.3K		.6K	
	COS	SIN	COS	SIN	COS	SIN
0	-2054.4	-1794.7	-892.3	-1207.6	702.6	-2460.7
1	819.6	-542.7	721.2	-206.8	1258.6	-314.0
2	498.9	78.4	99.6	31.8	-681.3	127.5
3	251.5	-345.2	8.2	-93.3	-621.3	382.5
4	1046.3	193.5	268.8	39.5	-944.9	-170.4
5	-132.7	-279.4	-1.7	-93.2	76.6	198.8
6	103.6	151.8	2.3	10.6	8.3	-71.6
7	0.8	-163.3	61.4	-1.7	-80.3	91.5
8	46.8	194.1	-28.7	4.4	2.4	-81.0
9	-179.1	-132.9	22.1	8.6	76.1	-17.1
10	-22.4		-10.1		-48.7	

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HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1K		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	81.6	285.5	3913.1	-3373.3
1	0.0	0.0	-113.0	-23.7	-5542.4	-32.5
2	0.0	0.0	-25.2	-53.2	-807.8	-43.0
3	0.0	0.0	-97.2	-99.1	139.7	140.3
4	0.0	0.0	15.5	-76.3	-80.2	-266.9
5	0.0	0.0	66.8	61.8	-14.5	76.1
6	0.0	0.0	-4.6	-9.7	-34.7	-344.4
7	0.0	0.0	-11.8	-38.3	-99.1	-24.2
8	0.0	0.0	-11.0	20.0	-132.7	27.8
9	0.0	0.0	-10.6	18.9	1.9	
10	0.0	0.0	23.4		-158.0	-122.7

RUN 21 PCINT 17
 VPTS = 92.1 CMGR = 679.0 ALFS,C = 11.1 CLR/S,R = 0.08018 CMY/S,R = 0.1950
 V/CR = 0.220 RHO100 = 0.2161 CP/S = 0.000208 CDR/S,R = 0.01852 CMX/S,R = -0.0052

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-4221.6	-1110.7	-2576.1	-372.8	-1539.2	-54.3	-555.1	209.3
1	-3134.0	-22.6	-2186.7	-130.9	-1357.8	-152.6	-75.2	-91.1
2	330.3	-84.5	536.4	-88.0	311.0	-44.0	16.3	-41.3
3	191.9	110.4	107.0	-70.2	51.8	-6.3	-8.8	-15.6
4	571.4	-173.6	347.1	-20.9	162.2	-13.6	-88.4	15.1
5	-259.0	419.4	-167.3	182.4	-72.4	98.6	32.5	-36.6
6	71.8	-65.5	160.6	-97.2	44.9	-18.5	-11.8	10.8
7	220.7	55.9	80.3	81.2	42.3	-27.8	-17.1	-9.0
8	-234.6	91.1	-55.9	18.7	23.4	6.2	24.6	-7.5
9	16.9	-59.5	42.9	-38.7	4.7	-23.5	-1.9	3.6
10	-0.1		-25.6		-20.3		-0.9	

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	LOWER ROTOR PITCH LINK LOAD	
	COS	SIN
0	-174.9	190.7
1	-106.5	-0.1
2	37.8	23.0
3	-30.0	-5.2
4	2.7	17.9
5	-35.5	-6.7
6	35.0	-29.2
7	-11.3	14.0
8	15.0	-7.1
9	28.8	5.0
10	-25.0	

PSI	PCURT 17	ALFS,C =	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	91.1	679.0	0.	-86.	-2815.
11.25	0.226	0.2161	251.	-166.	-3385.
22.50			-280.	-192.	-2623.
33.75			-900.	-54.	-2612.
45.00			-1345.	153.	-2411.
56.25			-1594.	385.	-1773.
67.50			-1807.	639.	-1110.
78.75			-1967.	669.	-6.
90.00			-1984.	385.	1476.
101.25			-1950.	144.	2399.
112.50			-1997.	180.	3388.
123.75			-2187.	338.	5104.
135.00			-2468.	435.	6204.
146.25			-2513.	394.	6296.
157.50			-2055.	272.	6605.
168.75			-1463.	229.	7271.
180.00			-1272.	246.	8214.
191.25			-1372.	198.	9734.
202.50			-1381.	144.	10560.
213.75			-1298.	59.	9928.
225.00			-1212.	-177.	9669.
236.25			-995.	-319.	10287.
247.50			-600.	-166.	10026.
258.75			-162.	-68.	8856.
270.00			207.	-200.	7926.
281.25			462.	-239.	6973.
292.50			578.	-158.	5619.
303.75			557.	-188.	3953.
315.00			439.	-192.	1979.
326.25			343.	-52.	575.
337.50			390.	22.	101.
348.75			511.	-26.	-995.
			511.		
			448.		

RUN 21
 VKTS =
 V/DR =
 PCINT 17
 91.1
 0.226
 OMEG*R = 679.0
 RHJ100 = 0.2161
 ALFS,C = 11.1
 CP/S = 0.000208
 CLR/S,R = 0.08018
 CDR/S,R = 0.01852
 CMY/S,R = 0.1950
 CMX/S,R = -0.0052

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEMISE BENDING .IN		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	-5960.	-3722.	-2301.	-663.	-4962.	-367.	
298.75	-5503.	-3543.	-2327.	-754.	-5115.	-405.	
277.50	-4907.	-3152.	-2009.	-819.	-5109.	-396.	
266.25	-3624.	-2517.	-1536.	-900.	-5343.	-428.	
255.00	-2090.	-1606.	-1187.	-962.	-5829.	-408.	
243.75	-2013.	-1087.	-1060.	-855.	-6158.	-239.	
232.50	-3138.	-1464.	-1073.	-611.	-6332.	-187.	
221.25	-2844.	-1704.	-899.	-493.	-6664.	-343.	
210.00	-691.	-808.	-400.	-586.	-7167.	-331.	
198.75	746.	366.	79.	-680.	-7690.	-90.	
187.50	348.	693.	289.	-628.	-8209.	42.	
176.25	-575.	373.	293.	-502.	-8707.	46.	
165.00	-1296.	-99.	72.	-386.	-9068.	70.	
153.75	-2120.	-634.	-275.	-291.	-9152.	36.	
142.50	-2981.	-1120.	-466.	-226.	-8992.	-24.	
131.25	-3625.	-1521.	-589.	-217.	-8811.	18.	
120.00	-4076.	-1927.	-903.	-270.	-8664.	32.	
108.75	-4587.	-2292.	-1250.	-341.	-8379.	-35.	
97.50	-5452.	-2725.	-1489.	-373.	-7998.	-25.	
86.25	-5556.	-3381.	-1817.	-378.	-7704.	-1.	
75.00	-7153.	-3990.	-2246.	-409.	-7396.	-87.	
63.75	-7527.	-4365.	-2580.	-453.	-6950.	-118.	
52.50	-8214.	-4762.	-2809.	-468.	-6524.	-33.	
41.25	-8534.	-5104.	-2927.	-499.	-6223.	-30.	
30.00	-7744.	-4955.	-2849.	-597.	-5960.	-136.	
18.75	-6627.	-4391.	-2652.	-701.	-5679.	-212.	
7.50	-6210.	-3890.	-2449.	-720.	-5324.	-243.	
356.25	-6335.	-3721.	-2326.	-663.	-4923.	-277.	
345.00	-6411.	-3841.	-2400.	-604.	-4693.	-330.	
333.75	-6348.	-3950.	-2522.	-573.	-4662.	-386.	
322.50	-6329.	-3849.	-2407.	-561.	-4641.	-377.	
311.25	-6275.	-3745.	-2237.	-584.	-4709.	-336.	

RUN 21 POINT 13
 VPTS = 50.1
 VCP = 0.250
 C45GPR = 608.8
 KJLIGU = 0.2161
 ALFS,C = 5.8
 CP/S = 0.001662
 CLR/S,R = 0.07404
 CDR/S,R = 0.00893
 CMY/S,R = 0.1118
 CAX/S,R = -0.0033

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1K		.2K		.3K		.6K	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2408.8		0.0		-1117.8		654.3	
1	33.4	276.8	0.0	0.0	278.9	-224.2	1034.9	-1606.7
2	365.4	-379.3	0.0	0.0	112.4	-126.8	285.3	-208.4
3	39.7	145.2	0.0	0.0	1.2	65.7	-340.9	130.5
4	365.5	-227.7	0.0	0.0	108.8	-56.6	-376.3	259.4
5	-277.6	289.1	0.0	0.0	-60.1	61.9	167.6	-252.1
6	53.8	-213.1	0.0	0.0	16.9	-84.1	51.7	165.3
7	41.5	75.8	0.0	0.0	34.6	0.6	-63.1	-14.7
8	-67.9	-29.1	0.0	0.0	9.4	7.6	31.8	13.6
9	84.1	0.3	0.0	0.0	8.0	-3.2	-51.5	28.6
10	-7.3	-69.5	0.0	0.0	-14.3	7.4	-1.7	52.2

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UPPER ROTOR EDGEWISE BENDING MOMENT .1K

HARMONIC	BENDING MOMENT .1K		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		175.8		3574.6	
1	0.0	0.0	-71.7	211.9	-1793.0	137.2
2	0.0	0.0	-30.8	12.3	-510.6	-54.0
3	0.0	0.0	-73.2	-2.7	48.7	-38.8
4	0.0	0.0	-7.6	-35.8	-102.6	81.9
5	0.0	0.0	13.7	-61.7	-58.7	-237.8
6	0.0	0.0	-2.0	39.2	3.3	29.3
7	0.0	0.0	7.9	58.8	-117.3	-99.9
8	0.0	0.0	-16.5	6.5	70.9	7.6
9	0.0	0.0	4.6	17.0	-40.0	-42.3
10	0.0	0.0	29.8	-3.2	-75.8	62.7

PJN 21 PCINT 13 CMY/S,R = 0.1118
V/KTS = 90.1 OMEG*R = 608.8 CLR/S,R = 0.07404
V/CR = 0.250 RHU100 = 0.2161 CP/S = 0.001662 CDR/S,R = 0.00893

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-5008.6	-355.8	-2981.0	-61.2	-1886.1	177.4	-580.6	247.4
1	-273.2	441.2	-84.2	253.5	37.4	163.1	128.2	25.5
2	205.2	-118.5	145.4	-77.5	46.4	-41.4	-24.1	-22.8
3	37.3	41.0	39.6	-11.2	31.4	2.3	23.6	-11.0
4	156.2	-76.4	106.9	39.3	50.0	3.6	-36.4	3.5
5	-351.1	459.2	-210.1	223.6	-103.3	118.9	40.0	-49.8
6	50.7	12.8	167.0	-68.0	55.6	-19.6	-11.5	-0.6
7	216.0	16.5	105.7	16.3	35.7	-2.4	-21.2	-2.1
8	-51.3	-4.8	-3.4	-11.8	13.5	7.5	1.4	-0.0
9	47.1	-1.3	7.1	-9.4	-5.4	-1.8	-6.5	3.6
10	28.9	-1.3	10.4		6.4		-1.4	

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HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-4900.0	-656.4	-131.8	118.0
1	948.8	-228.4	-101.2	9.0
2	-204.9	-7.5	26.5	1.1
3	15.0	6.1	-24.3	-0.6
4	-12.9	-39.3	2.1	-2.5
5	6.6	-37.3	-23.9	0.5
6	-48.6	-424.0	35.7	-13.9
7	352.0	16.8	10.8	-0.3
8	-6.3	-18.0	10.4	1.0
9	-31.5	9.8	20.6	-9.5
10	0.1		-9.4	

PUN	21	PULHJ	18
VKTS =	90.1	OMEG#R =	608.8
V/CR =	0.25U	RHD100 =	0.2161
		ALFS,C =	5.8
		CLR/S,R =	0.07404
		CDR/S,R =	0.00893
		CNV/S,R =	0.1118
		CNX/S,R =	-0.0033

PSI	UPPER ROTOR BLADE		BENDING MOMENT		UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
	.1R	.2R	.3R	.6R			
0.00	-1788.	0.	-622.	822.	0.	30.	999.
11.25	-2051.	0.	-789.	848.	0.	89.	1093.
22.50	-2181.	0.	-985.	701.	0.	80.	1519.
33.75	-2422.	0.	-1086.	600.	0.	144.	2054.
45.00	-2852.	0.	-1142.	679.	0.	299.	2634.
56.25	-3063.	0.	-1321.	510.	0.	509.	2921.
67.50	-2984.	0.	-1521.	-35.	0.	615.	3124.
78.75	-2723.	0.	-1506.	-729.	0.	464.	3655.
90.00	-2238.	0.	-1346.	-1401.	0.	266.	4122.
101.25	-1826.	0.	-1287.	-1663.	0.	280.	4357.
112.50	-1950.	0.	-1393.	-1201.	0.	370.	4862.
123.75	-2524.	0.	-1569.	-463.	0.	375.	5431.
135.00	-2871.	0.	-1609.	-224.	0.	359.	5419.
146.25	-2287.	0.	-1367.	727.	0.	334.	4923.
157.50	-1097.	0.	-1047.	-1418.	0.	297.	4419.
168.75	-748.	0.	-978.	-1432.	0.	296.	4365.
180.00	-1730.	0.	-1147.	-673.	0.	267.	4920.
191.25	-2840.	0.	-1365.	77.	0.	209.	5288.
202.50	-3364.	0.	-1536.	454.	0.	227.	4909.
213.75	-3614.	0.	-1546.	713.	0.	185.	4634.
225.00	-3424.	0.	-1363.	803.	0.	-25.	4621.
236.25	-2779.	0.	-1177.	756.	0.	-123.	4639.
247.50	-2553.	0.	-1084.	1101.	0.	1.	4216.
258.75	-2852.	0.	-982.	1841.	0.	72.	4230.
270.00	-2928.	0.	-883.	2491.	0.	43.	4130.
281.25	-2884.	0.	-852.	3076.	0.	28.	3532.
292.50	-3018.	0.	-821.	3574.	0.	-52.	3053.
303.75	-2876.	0.	-769.	3513.	0.	-107.	2671.
315.00	-2462.	0.	-754.	2992.	0.	35.	2118.
326.25	-2253.	0.	-723.	2461.	0.	132.	1903.
337.50	-2058.	0.	-630.	1804.	0.	-1.	1929.
348.75	-1758.	0.	-569.	1087.	0.	-75.	1497.

RUN 21
VKTS =
V/OR =

PGINT 18
90.1
0.250

UMEG*R = 608.8
RHUI00 = 0.2161

ALFS,C = 5.8
CP/S = 0.001662

CLR/S,R = 0.07404
CDR/S,R = 0.00893

CMY/S,R = 0.1118
CMX/S,R = -0.0033

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEMISE BENDING		LR PITCH LINK LOAD
	.1R	.2R	.3R	.6R	.1R	
300.00	-5597.	-3190.	-2202.	-743.	-3128.	-274.
288.75	-6095.	-3653.	-2418.	-729.	-3720.	-308.
277.50	-5640.	-3668.	-2382.	-788.	-4411.	-300.
266.25	-4418.	-3059.	-2051.	-884.	-4347.	-303.
255.00	-3508.	-2348.	-1743.	-931.	-4095.	-248.
243.75	-3858.	-2264.	-1770.	-852.	-4559.	-147.
232.50	-4860.	-2805.	-2002.	-701.	-5481.	-158.
221.25	-5029.	-3183.	-2092.	-649.	-5910.	-215.
210.00	-4135.	-2893.	-1943.	-751.	-5606.	-137.
198.75	-3412.	-2331.	-1719.	-863.	-5289.	-7.
187.50	-3733.	-2181.	-1631.	-866.	-5961.	42.
176.25	-4662.	-2592.	-1786.	-785.	-6710.	60.
165.00	-5340.	-3126.	-2052.	-683.	-6510.	52.
153.75	-5578.	-3371.	-2154.	-593.	-5624.	-19.
142.50	-5672.	-3371.	-2045.	-525.	-5407.	-45.
131.25	-5629.	-3317.	-1916.	-476.	-6049.	9.
120.00	-5382.	-3200.	-1853.	-434.	-6271.	18.
108.75	-5273.	-3059.	-1787.	-389.	-5530.	-25.
97.50	-5446.	-3047.	-1712.	-335.	-4886.	-38.
86.25	-5505.	-3100.	-1673.	-293.	-5210.	-54.
75.00	-5348.	-3055.	-1662.	-277.	-5809.	-88.
63.75	-5309.	-2984.	-1658.	-270.	-5589.	-72.
52.50	-5379.	-2996.	-1661.	-268.	-4746.	-33.
41.25	-5300.	-3015.	-1671.	-294.	-4394.	-64.
30.00	-5046.	-2943.	-1658.	-355.	-4834.	-160.
18.75	-4724.	-2769.	-1611.	-431.	-5136.	-225.
7.50	-4637.	-2631.	-1622.	-485.	-4569.	-205.
356.25	-5099.	-2792.	-1791.	-481.	-3696.	-185.
345.00	-5623.	-3192.	-2013.	-462.	-3519.	-257.
333.75	-5399.	-3329.	-2075.	-536.	-4023.	-326.
322.50	-4792.	-3049.	-1996.	-685.	-4128.	-277.
311.25	-4049.	-2877.	-2004.	-765.	-3486.	-229.

CMV/S.R = 0.1072
CMX/S.R = -0.0025

CLR/S.R = 0.06936
CDR/S.R = 0.00890

ALFS.C = 5.5
CP/S = 0.001245

PCINT 19
108.5
0.300

RUN 21
V/KTS =
V/CR =

WEG#R = 609.8
RHUIGO = 0.2150

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-3064.5	1720.3	0.0	0.0	-1437.8	412.7	364.6	-1390.8
1	829.0	-810.9	0.0	0.0	696.2	-289.2	1506.9	-214.4
2	200.0	97.2	0.0	0.0	60.6	46.1	-183.1	231.4
3	127.6	-204.9	0.0	0.0	35.3	-34.9	-96.1	246.1
4	403.2	359.4	0.0	0.0	127.1	61.2	-355.3	-256.8
5	-429.1	-238.5	0.0	0.0	-110.8	-78.6	304.6	131.0
6	-129.9	143.4	0.0	0.0	-40.4	-9.9	142.5	-42.1
7	43.6	134.0	0.0	0.0	20.0	-2.5	-8.4	-76.0
8	-158.4	-88.9	0.0	0.0	39.5	11.3	121.4	57.0
9	-96.4	12.4	0.0	0.0	0.2	8.6	106.1	13.6
10	-83.5		0.0	0.0	0.5		73.0	

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	176.9	224.9	3568.2	473.0
1	0.0	0.0	-39.7	44.7	-959.5	-101.7
2	0.0	0.0	-31.2	13.7	-394.1	-121.0
3	0.0	0.0	-59.2	-26.6	-3.6	255.2
4	0.0	0.0	-18.3	-77.2	-189.6	-267.7
5	0.0	0.0	27.8	25.6	-44.0	35.7
6	0.0	0.0	15.7	74.2	31.1	-77.3
7	0.0	0.0	31.5	56.8	-250.9	-102.3
8	0.0	0.0	26.9	6.3	156.6	-9.7
9	0.0	0.0	30.2	-20.5	34.7	95.4
10	0.0	0.0	20.0		-36.8	

RUN 21
VKTS =
V/OR =

PUNT 19
108.5
0.300

OMEGA R = 609.8
RHJ100 = 0.2150

ALFS,C = 5.5
CP/S = 0.001245

CLR/S,R = 0.06938
CDR/S,R = 0.00890

CMY/S,R = 0.1072
CMX/S,R = -0.0025

LOWER ROTOR BLADE NORMAL BENDING MUMENT

HARMONIC	.1R		.2F		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-5406.9		-3302.9		-2134.5		-636.9	
1	-210.0	-1411.3	-81.1	-773.2	86.0	-249.8	139.6	239.5
2	-19.6	743.1	28.6	470.0	-37.1	265.6	-40.0	12.3
3	70.2	-40.4	45.9	-31.9	37.6	-6.0	34.4	-24.7
4	236.7	139.1	181.6	22.0	96.5	26.1	-50.9	-20.2
5	-257.1	-157.1	-176.0	-25.4	-76.4	-22.8	31.9	14.0
6	-185.6	406.6	12.5	255.6	-17.8	119.4	10.7	-43.5
7	237.6	81.4	118.4	-62.0	39.1	-27.6	-21.9	-6.1
8	-47.3	-68.6	-26.2	-20.6	8.7	-1.7	2.1	-0.1
9	8.1	170.6	53.5	47.1	-1.5	2.4	-3.0	-16.1
10	12.5	22.4	19.9	22.9	1.9	23.8	2.3	-6.0

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LOWER ROTOR EDGEWISE BENDING MUMENT .1R

HARMONIC	COS		SIN	
	COS	SIN	COS	SIN
0	-5046.3		-147.7	
1	830.8	-757.5	-117.0	110.4
2	-142.8	-244.2	38.6	15.9
3	-9.8	8.5	-23.7	3.3
4	-39.9	29.8	-1.1	8.9
5	34.9	-46.6	-20.3	-10.4
6	-43.3	-31.7	21.0	18.2
7	25.3	-404.2	23.3	-16.9
8	-16.4	10.4	0.7	10.2
9	-37.9	3.2	12.6	2.5
10	16.9	-14.0	31.1	10.0

HARMONIC

RUN 21
 VKTS =
 V/CR =
 POINT 19
 108.5
 0.300
 OMEG#R = 609.8
 RHJ100 = 0.2150
 ALFS,C = 5.5
 CP/S = 0.001245
 CLR/S,R = 0.06938
 CDR/S,R = 0.00890
 CMY/S,R = 0.1072
 CMX/S,R = -0.0025

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1K	.2R	.3R	.6R	UR EDGEWISE BENDING .1K	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-2359.	0.	-610.	1978.	0.	181.	1912.
11.25	-1693.	0.	-697.	1321.	0.	187.	1949.
22.50	-1373.	0.	-778.	692.	0.	67.	2403.
33.75	-2088.	0.	-774.	910.	0.	153.	3196.
45.00	-2557.	0.	-871.	930.	0.	434.	3561.
56.25	-2357.	0.	-1167.	288.	0.	665.	3297.
67.50	-2292.	0.	-1335.	-248.	0.	624.	3518.
78.75	-2063.	0.	-1132.	-776.	0.	376.	4267.
90.00	-1056.	0.	-843.	-1682.	0.	247.	4329.
101.25	-239.	0.	-845.	-2116.	0.	314.	4143.
112.50	-846.	0.	-1120.	-1436.	0.	360.	4901.
123.75	-2326.	0.	-1425.	-490.	0.	351.	5702.
135.00	-2961.	0.	-1587.	-384.	0.	361.	5240.
146.25	-2220.	0.	-1588.	-1163.	0.	324.	4110.
157.50	-1517.	0.	-1537.	-1956.	0.	246.	3463.
168.75	-2048.	0.	-1601.	-2063.	0.	212.	3677.
180.00	-3308.	0.	-1891.	-1652.	0.	199.	4359.
191.25	-4592.	0.	-2323.	-1084.	0.	200.	4563.
202.50	-5766.	0.	-2637.	-414.	0.	214.	4153.
213.75	-6255.	0.	-2684.	51.	0.	139.	4058.
225.00	-5815.	0.	-2583.	89.	0.	8.	4184.
236.25	-5348.	0.	-2447.	202.	0.	-40.	3681.
247.50	-5197.	0.	-2224.	668.	0.	-48.	3115.
258.75	-4847.	0.	-1941.	1199.	0.	-19.	3285.
270.00	-4556.	0.	-1741.	1878.	0.	115.	3541.
281.25	-4637.	0.	-1636.	2717.	0.	107.	3394.
292.50	-4459.	0.	-1514.	3115.	0.	-146.	3211.
303.75	-3844.	0.	-1316.	3001.	0.	-185.	2983.
315.00	-3171.	0.	-1060.	2730.	0.	86.	2673.
326.25	-2357.	0.	-820.	2129.	0.	112.	2591.
337.50	-1799.	0.	-674.	1524.	0.	-115.	2529.
348.75	-2116.	0.	-609.	1709.	0.	-65.	2194.

RUN 21 POINT 19
 VKTS = 108.5 UMEGR = 609.8 ALFS,C = 5.5 CLR/S,R = 0.06938 CMY/S,R = 0.1072
 V/OR = 0.300 RHJ100 = 0.2150 CP/S = 0.001245 CDR/S,R = 0.00890 CMX/S,R = -0.0025

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEMISE BENDING .LR		LR PITCH LINK LOAD
	.1R	.2R	.3R	.6R		
300.00	-5305.	-3210.	-2164.	-763.	-3339.	-304.
288.75	-5215.	-3258.	-2194.	-789.	-3456.	-295.
277.50	-4491.	-3010.	-2003.	-856.	-4179.	-357.
266.25	-3114.	-2265.	-1611.	-959.	-4586.	-324.
255.00	-2458.	-1626.	-1445.	-973.	-4455.	-189.
243.75	-3517.	-1906.	-1665.	-839.	-4556.	-176.
232.50	-4729.	-2704.	-1942.	-704.	-5183.	-233.
221.25	-4331.	-2931.	-2028.	-732.	-5694.	-186.
210.00	-3315.	-2477.	-1929.	-877.	-5667.	-85.
198.75	-3479.	-2197.	-1803.	-971.	-5483.	17.
187.50	-4588.	-2580.	-1921.	-945.	-5700.	89.
176.25	-5524.	-3277.	-2306.	-865.	-6281.	38.
165.00	-6202.	-3809.	-2606.	-777.	-6489.	-34.
153.75	-6843.	-4135.	-2663.	-668.	-5929.	8.
142.50	-7122.	-4343.	-2653.	-571.	-5413.	20.
131.25	-7006.	-4363.	-2643.	-519.	-5731.	-46.
120.00	-6951.	-4275.	-2581.	-470.	-6226.	-32.
108.75	-6931.	-4221.	-2480.	-414.	-5981.	-9.
97.50	-6649.	-4053.	-2324.	-396.	-5425.	-87.
86.25	-6433.	-3791.	-2176.	-381.	-5406.	-121.
75.00	-6560.	-3786.	-2183.	-326.	-5775.	-92.
63.75	-6545.	-3922.	-2243.	-306.	-5820.	-108.
52.50	-6204.	-3778.	-2167.	-345.	-5323.	-91.
41.25	-5972.	-3521.	-2047.	-370.	-4776.	-66.
30.00	-5717.	-3412.	-1978.	-410.	-4774.	-174.
18.75	-5194.	-3213.	-1894.	-512.	-5113.	-252.
7.50	-5134.	-3019.	-1893.	-562.	-4957.	-185.
356.25	-5813.	-3249.	-2066.	-511.	-4174.	-215.
345.00	-6084.	-3581.	-2213.	-508.	-3651.	-346.
333.75	-5478.	-3472.	-2202.	-611.	-3876.	-331.
322.50	-5003.	-3184.	-2151.	-706.	-4185.	-264.
311.25	-5116.	-3125.	-2132.	-743.	-3877.	-296.

PUN 23 PCINT 7 UMEGR = 592.1 ALFS,C = 0.2 CLR/S,R = 0.02499 CMY/S,R = 0.0246
 VKTS = 105.0 RHU100 = 0.2281 CP/S = 0.002093 CDR/S,R = 0.00209 CMX/S,R = -0.0006
 V/CR = 0.299

UPPER ROTOR BLADE NORMAL BENDING MUMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-6121.8	-521.7	-2441.1	-679.4	-2861.7	-628.4	-3123.7	-1961.8
1	165.6	-826.2	336.0	-495.6	359.8	-280.3	1188.4	-65.0
2	-29.8	-34.8	23.6	23.0	-5.4	38.8	-93.1	376.2
3	164.9	-84.2	82.6	12.2	39.4	7.6	3.4	170.6
4	316.9	147.0	208.5	73.3	106.2	28.9	-289.6	-77.3
5	-117.5	-31.8	-73.6	-53.9	-31.5	-38.8	53.6	-0.3
6	-102.9	-2.3	-50.9	23.8	-28.6	7.3	81.1	-35.7
7	62.6	34.4	16.5	14.5	-2.2	-14.0	-7.7	-15.9
8	38.2	89.4	8.4	41.3	-1.1	-2.2	-6.6	-64.9
9	16.0	-25.8	-17.4	-1.7	-4.1	11.3	-2.8	-16.4
10	4.3		2.3		-4.3		11.3	

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UPPER ROTOR SHAFT STRESS

UPPER ROTOR		UPPER ROTOR	
PITCH LINK LOAD		SHAFT STRESS	
COS	SIN	COS	SIN
1927.5	-135.5		
-1944.7	-217.7		
-290.4	-330.4		
171.3	264.4		
-244.4	-29.3		
-89.0	16.3		
5.3	6.1		
36.9	-7.5		
-64.6	-61.3		
10.2	84.4		
0.3			

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

UPPER ROTOR		UPPER ROTOR	
PITCH LINK LOAD		SHAFT STRESS	
COS	SIN	COS	SIN
1927.5	-135.5		
-1944.7	-217.7		
-290.4	-330.4		
171.3	264.4		
-244.4	-29.3		
-89.0	16.3		
5.3	6.1		
36.9	-7.5		
-64.6	-61.3		
10.2	84.4		
0.3			

HARMONIC

UPPER ROTOR		UPPER ROTOR	
PITCH LINK LOAD		SHAFT STRESS	
COS	SIN	COS	SIN
1927.5	-135.5		
-1944.7	-217.7		
-290.4	-330.4		
171.3	264.4		
-244.4	-29.3		
-89.0	16.3		
5.3	6.1		
36.9	-7.5		
-64.6	-61.3		
10.2	84.4		
0.3			

RUN 23 POINT 7
 VKTS = 105.0
 V/OR = 0.299

OMEGA*R = 592.1
 RHUI00 = 0.2281

ALFS,C = 0.2
 CP/S = 0.002093

CLR/S,R = 0.02499
 CDR/S,R = 0.00209

CMY/S,R = 0.0246
 CNX/S,R = -0.0006

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-10792.9		-7252.4		-4844.8		-953.9	
1	-603.0	165.4	-309.5	311.4	-105.5	410.0	88.5	291.6
2	112.5	1102.1	195.1	696.4	101.7	430.3	33.0	56.7
3	189.4	54.2	152.8	5.5	107.7	19.2	43.2	-29.5
4	257.4	-86.6	148.8	-117.1	101.0	-58.7	-42.5	3.3
5	-180.1	17.9	-80.5	38.6	-43.3	2.5	18.0	-11.1
6	-225.6	308.3	-18.0	229.7	-26.5	115.2	13.2	-35.9
7	140.2	76.8	87.2	3.9	25.5	15.2	-9.7	-6.1
8	4.9	10.1	5.1	-1.3	0.7	-3.0	0.3	-4.0
9	107.2	86.2	70.7	0.9	13.9	7.4	-10.0	-7.0
10	-45.2	-33.9	-28.1	10.1	-4.6	8.5	6.9	1.0

LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-4009.4		-239.9		-239.9		-239.9	
1	-70.5	-614.9	-65.5	115.3	-65.5	115.3	-65.5	115.3
2	24.3	-292.9	32.3	6.1	32.3	6.1	32.3	6.1
3	-39.5	-36.0	-1.1	25.9	-1.1	25.9	-1.1	25.9
4	-52.5	24.7	3.3	-2.1	3.3	-2.1	3.3	-2.1
5	-1.4	-28.6	-17.2	7.7	-17.2	7.7	-17.2	7.7
6	-19.4	-42.0	12.3	20.7	12.3	20.7	12.3	20.7
7	-96.2	60.0	11.1	-8.4	11.1	-8.4	11.1	-8.4
8	-19.2	7.8	-2.2	-1.8	-2.2	-1.8	-2.2	-1.8
9	6.3	9.4	8.9	-21.5	8.9	-21.5	8.9	-21.5
10	-10.2	-5.3	8.8	4.8	8.8	4.8	8.8	4.8

PUN 23	PUNT 7	UMEG#R = 592.1	ALFS,C # 0.2	CLR/S,R = 0.02499	CMY/S,R = 0.0246	
VKTS =	105.0	CP/S = 0.002093	CDR/S,R = 0.00209	CMX/S,R = -0.0006		
V/OR =	0.299	RHUI00 = 0.2281				
	UPPER ROTOR	BLADE NORMAL	BENDING MOMENT	UR EDGEWISE	UR PITCH	
	.1R	.2R	.3R	BENDING .1R	LINK LOAD	
PSI					UPPER ROTOR	
0.00	-5583.	-1905.	-2433.	-2186.	-230.	-482.
11.25	-6011.	-2141.	-2645.	-2467.	-217.	-420.
22.50	-6708.	-2580.	-2876.	-2495.	-148.	-254.
33.75	-7250.	-3051.	-3134.	-2662.	-33.	2.
45.00	-7500.	-3358.	-3399.	-3230.	33.	201.
56.25	-7660.	-3554.	-3609.	-3900.	87.	359.
67.50	-7543.	-3596.	-3645.	-4604.	107.	807.
78.75	-6790.	-3292.	-3510.	-5415.	40.	1413.
90.00	-5886.	-2811.	-3366.	-5884.	8.	2001.
101.25	-5704.	-2614.	-3302.	-5683.	43.	2902.
112.50	-6094.	-2766.	-3311.	-5204.	12.	3745.
123.75	-6280.	-2932.	-3386.	-4847.	-46.	3715.
135.00	-6166.	-2932.	-3427.	-4653.	-43.	3301.
146.25	-6002.	-2799.	-3318.	-4703.	-61.	3249.
157.50	-5777.	-2572.	-3155.	-4944.	-101.	3103.
168.75	-5748.	-2433.	-3101.	-4990.	-93.	2820.
180.00	-6207.	-2593.	-3157.	-4656.	-112.	3149.
191.25	-6710.	-2879.	-3239.	-4180.	-162.	3775.
202.50	-6860.	-2967.	-3258.	-3730.	-168.	3944.
213.75	-6937.	-2895.	-3157.	-3210.	-217.	3876.
225.00	-6941.	-2811.	-2999.	-2613.	-311.	3714.
236.25	-6501.	-2601.	-2841.	-2118.	-289.	3205.
247.50	-5883.	-2204.	-2598.	-1778.	-233.	2663.
258.75	-5557.	-1827.	-2283.	-1414.	-291.	2290.
270.00	-5390.	-1587.	-2070.	-955.	-325.	1805.
281.25	-5266.	-1448.	-1995.	-565.	-291.	1480.
292.50	-5315.	-1436.	-1967.	-357.	-349.	1590.
303.75	-5293.	-1500.	-1993.	-411.	-405.	1586.
315.00	-4994.	-1464.	-2051.	-866.	-329.	1213.
326.25	-4844.	-1377.	-2056.	-1501.	-291.	811.
337.50	-5101.	-1475.	-2075.	-1625.	-335.	338.
348.75	-5395.	-1715.	-2219.	-1915.	-297.	-222.

ORIGINAL PAGE IS
OF POOR QUALITY

RJN 23
VKTS =
V/CP =

PUNT 7
105.0
J.299

GMEGR = 592.1
RHU100 = 0.2281

ALFS,C = 0.2
CP/S = 0.002093

CLR/S,R = 0.02499
CDR/S,R = 0.00209

CMY/S,R = 0.0246
CMX/S,R = -0.0006

PSI	LOWER ROTOR BLADE NORMAL	BENDING MOMENT	LR EDGEWISE BENDING	LR PITCH LINK LOAD
	.1R	.2R	.3R	.6R
-13063.	-8740.	-5933.	-1223.	-380.
-12697.	-8906.	-5903.	-1260.	-428.
-11397.	-8186.	-5541.	-1330.	-416.
-10144.	-7307.	-5037.	-1361.	-353.
-9456.	-6695.	-4720.	-1319.	-299.
-9519.	-6547.	-4705.	-1215.	-286.
-10072.	-6797.	-4810.	-1077.	-304.
-10054.	-6961.	-4802.	-1007.	-326.
-9298.	-6637.	-4638.	-1062.	-293.
-9168.	-6324.	-4510.	-1123.	-184.
-9949.	-6581.	-4572.	-1100.	-112.
-10416.	-6970.	-4714.	-1065.	-134.
-10466.	-7057.	-4788.	-1042.	-130.
-10870.	-7182.	-4833.	-965.	-74.
-11123.	-7443.	-4879.	-864.	-91.
-11399.	-7522.	-4871.	-799.	-142.
-11438.	-7511.	-4835.	-740.	-121.
-11283.	-7507.	-4777.	-699.	-121.
-10623.	-7218.	-4595.	-722.	-191.
-10154.	-6779.	-4357.	-739.	-199.
-10333.	-6681.	-4277.	-689.	-157.
-10545.	-6836.	-4348.	-635.	-188.
-10465.	-6892.	-4409.	-618.	-216.
-10367.	-6879.	-4414.	-626.	-172.
-10231.	-6830.	-4369.	-681.	-170.
-10089.	-6691.	-4319.	-773.	-227.
-10440.	-6739.	-4447.	-818.	-244.
-11377.	-7238.	-4811.	-810.	-263.
-12147.	-7878.	-5179.	-848.	-349.
-12166.	-8166.	-5380.	-978.	-403.
-11985.	-8154.	-5523.	-1129.	-366.
-12439.	-8324.	-5735.	-1208.	-339.

P.M. 23 P.W.T 0 ALFS,C = 0.6 CLR/S,R = 0.08253 CAY/S,R = 0.0536
 VRTS = 105.8 593.2 CP/S = 0.003972 CDR/S,R = 0.00167 CMX/S,R = -0.0035
 V/C = 0.301 0.2263

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1530.9	1724.4	807.2	806.3	-526.6	350.5	-1101.8	-1428.9
1	-94.7	-758.5	64.1	-514.6	193.5	-510.0	952.4	-357.1
2	-625.0	187.5	-428.9	110.2	-347.4	100.6	-982.2	91.7
3	-203.6	-32.3	-156.5	-117.3	-87.6	-56.0	120.0	168.9
4	-393.8	234.0	35.0	81.8	14.3	41.3	-28.7	-206.1
5	-216.9	-416.3	-198.3	-280.4	-59.6	-127.3	239.7	209.5
6	248.0	74.2	-53.8	28.4	-54.6	-34.2	200.4	5.7
7	61.6	168.2	114.0	59.6	13.9	-26.5	-132.8	-106.3
8	57.5	109.3	-1.8	39.6	2.6	-20.3	-50.3	-100.8
9	-7.2	-37.8	14.3	-8.6	12.7	5.3	-15.0	-0.0
10			-7.5		-11.6		46.9	

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-142.4	203.3	4090.8	1769.3
1	0.0	0.0	23.7	54.8	-2245.6	-478.2
2	0.0	0.0	-23.8	50.2	-355.5	61.2
3	0.0	0.0	-11.7	7.5	451.9	311.1
4	0.0	0.0	-32.8	-48.8	-58.3	-423.1
5	0.0	0.0	22.5	19.6	25.6	5.8
6	0.0	0.0	33.6	-4.1	-72.5	-247.9
7	0.0	0.0	39.2	8.7	-113.1	-116.4
8	0.0	0.0	20.3	-20.3	61.3	-42.1
9	0.0	0.0	-38.3	32.4	24.5	-9.7
10	0.0	0.0	-6.0		-7.3	

PUN. 23 POINT 8 UMEG#P = 593.2 ALFS,C = 0.6 CMY/S,R = 0.0536
 VPTS = 105.4 RHJLCO = 0.2263 CP/S = 0.003972 CDR/S,R = 0.08253 CMX/S,R = -0.0035
 V/CR = 0.301

HARMONIC	LOWER ROTOR BLADE NORMAL BENDING MOMENT			
	.2R		.3R	
	COS	SIN	COS	SIN
0	-2439.2		-668.4	
1	-190.9	-614.7	93.8	174.1
2	-793.6	338.6	-512.9	155.1
3	-63.7	-411.2	7.6	-119.6
4	110.6	1.8	55.2	-13.2
5	-471.1	-325.5	-136.0	-43.6
6	-130.6	444.1	5.1	125.3
7	253.7	127.0	44.7	12.3
8	-27.7	-86.1	-20.7	29.3
9	-251.1	73.4	4.6	-4.6
10	-53.1	50.6	-15.7	5.5
			COS	SIN
			-371.2	350.0
			139.8	40.6
			-240.8	58.8
			61.9	-1.8
			-27.3	31.0
			62.6	-47.5
			9.3	-11.1
			-25.3	6.9
			1.6	-9.8
			21.1	-9.5
			11.9	

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-3924.5		-146.6	
1	1427.5	-99.5	-159.0	61.2
2	399.9	-658.1	32.6	25.0
3	113.9	106.4	-3.0	-17.0
4	-45.3	22.7	-1.9	6.2
5	70.8	-11.4	-3.2	1.4
6	-29.6	-73.5	33.5	4.2
7	638.3	800.8	8.9	1.7
8	-15.8	-76.4	2.9	18.1
9	-21.8	-41.5	-0.8	2.3
10	-15.1	-8.7	4.0	6.9

PUN 23	POINT 8	UMEG*R = 593.2	ALFS,C = 0.6	CLR/S,R = 0.08253	CHY/S,R = 0.0536		
VKTS = 105.8	RHJ100 = 0.2263	CP/S = 0.003972	CDR/S,R = 0.00167	CMX/S,R = -0.0035			
V/OP = 0.301							
PSI	UPPER ROTOR BLADE NORMAL	BENDING MOMENT	UR EDGEWISE BENDING .1K	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS		
	.1R .2K .3R .6R						
0.00	-2733.	188.	-850.	-711.	0.	-116.	1802.
11.25	-2536.	126.	-962.	-1212.	0.	-45.	1517.
22.50	-2163.	314.	-694.	-1462.	0.	-68.	2253.
33.75	-1119.	892.	-300.	-1817.	0.	-8.	3250.
45.00	-33.	1513.	-156.	-2221.	0.	191.	3468.
56.25	-114.	1564.	-247.	-1836.	0.	267.	3368.
67.50	-846.	1228.	-241.	-1086.	0.	138.	3950.
78.75	-414.	1373.	-15.	-1363.	0.	-15.	5086.
90.00	1148.	2120.	209.	-2281.	0.	-71.	6020.
101.25	1869.	2581.	244.	-2334.	0.	-32.	6732.
112.50	1015.	2232.	94.	-1633.	0.	13.	7665.
123.75	-133.	1542.	-159.	-1329.	0.	12.	8522.
135.00	-430.	1224.	-321.	-1773.	0.	36.	8431.
146.25	70.	1461.	-266.	-2712.	0.	24.	7266.
157.50	471.	1747.	-243.	-3607.	0.	-159.	5944.
168.75	-269.	1416.	-536.	-3718.	0.	-294.	5361.
180.00	-1980.	513.	-996.	-3120.	0.	-186.	5515.
191.25	-3275.	-264.	-1341.	-2590.	0.	-134.	5710.
202.50	-3622.	-563.	-1500.	-2250.	0.	-255.	5384.
213.75	-3683.	-585.	-1465.	-1750.	0.	-267.	4655.
225.00	-3613.	-457.	-1275.	-1159.	0.	-234.	3966.
236.25	-3244.	-201.	-1093.	-563.	0.	-346.	3494.
247.50	-2979.	32.	-934.	175.	0.	-347.	3222.
258.75	-2854.	237.	-674.	903.	0.	-193.	3140.
270.00	-2464.	541.	-401.	1389.	0.	-247.	3038.
281.25	-2210.	792.	-272.	1699.	0.	-395.	2654.
292.50	-2450.	784.	-240.	1815.	0.	-310.	2060.
303.75	-2378.	710.	-274.	1473.	0.	-227.	1447.
315.00	-1696.	802.	-401.	660.	0.	-349.	977.
326.25	-1506.	876.	-488.	-117.	0.	-408.	1055.
337.50	-2213.	697.	-475.	-364.	0.	-314.	1757.
348.75	-2791.	394.	-577.	-363.	0.	-218.	2197.

RUN 23
VKTS =
V/OR =

POINT 8
105.8
0.301

CMEG#R = 593.2
RHU100 = 0.2263

ALFS,C = 0.6
CP/S = 0.003972

CLR/S,R = 0.08253
CDR/S,R = 0.00167
CMY/S,R = 0.0536
CMX/S,R = -0.0035

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING		LR PITCH LINK LOAD
	.1R	.2R	.3R	.1R	.2R	
300.00	-2080.	-1012.	-793.	-547.	-3007.	-284.
268.75	-2897.	-1412.	-842.	-374.	-4432.	-287.
277.50	-2214.	-1361.	-594.	-382.	-3949.	-307.
266.25	-172.	-403.	-235.	-560.	-3169.	-278.
255.00	271.	302.	-104.	-604.	-4252.	-194.
243.75	-1396.	-226.	-311.	-486.	-6140.	-109.
232.50	-2527.	-1171.	-724.	-458.	-6302.	-55.
221.25	-2099.	-1446.	-1023.	-600.	-4042.	-41.
210.00	-1482.	-1154.	-967.	-800.	-4288.	-25.
198.75	-1496.	-936.	-807.	-943.	-5582.	41.
187.50	-2001.	-1115.	-951.	-952.	-6594.	96.
176.25	-2329.	-1618.	-1272.	-822.	-5467.	61.
165.00	-3927.	-2140.	-1399.	-619.	-3618.	1.
153.75	-4263.	-2389.	-1316.	-406.	-3543.	-13.
142.50	-3776.	-2243.	-1123.	-237.	-4905.	-23.
131.25	-3089.	-1796.	-785.	-127.	-5221.	-40.
120.00	-2582.	-1289.	-372.	-25.	-3925.	-32.
108.75	-2102.	-869.	-59.	66.	-3200.	-37.
97.50	-1846.	-602.	93.	114.	-4369.	-94.
86.25	-2121.	-613.	122.	166.	-5681.	-150.
75.00	-2305.	-753.	87.	198.	-5063.	-156.
63.75	-2039.	-710.	-3.	125.	-3409.	-130.
52.50	-2299.	-785.	-237.	33.	-3035.	-138.
41.25	-3218.	-1327.	-564.	3.	-3930.	-218.
30.00	-3473.	-1756.	-758.	-93.	-4006.	-289.
18.75	-3217.	-1685.	-829.	-262.	-2546.	-256.
7.50	-3663.	-1773.	-997.	-337.	-1201.	-208.
356.25	-4033.	-2149.	-1193.	-381.	-1477.	-260.
345.00	-3227.	-2032.	-1162.	-535.	-2631.	-332.
333.75	-2257.	-1440.	-920.	-675.	-2748.	-331.
322.50	-1495.	-1046.	-694.	-698.	-1649.	-308.
311.25	-1701.	-910.	-658.	-665.	-1404.	-300.

RUN 23 PCINT 9 CMY/S,R = 3.1579
VMTS = 105.6 UMEGR = 597.3 ALFS,C = 5.8 CLK/S,R = 0.11436
V/CP = 0.299 RHJ100 = 0.2251 CP/S = 0.004235 CDR/S,R = 0.01082
CMX/S,R = -0.0046

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2P		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1618.4		2997.9		978.5		-64.5	
1	107.6	2018.8	241.6	1013.0	359.0	418.0	1114.1	-1655.7
2	-1223.6	-1145.0	-861.0	-830.3	-668.5	-513.2	-1663.2	-776.8
3	-155.4	185.7	-99.5	87.5	-62.0	61.3	-171.0	-15.0
4	116.6	-490.9	147.2	-254.6	51.0	-120.3	-111.5	439.7
5	-283.1	269.3	-146.5	3.7	-36.0	22.3	150.4	-149.2
6	-113.3	-652.8	32.6	-413.8	-35.0	-192.6	200.3	359.2
7	260.8	91.1	154.0	17.9	26.5	-62.2	-173.0	60.4
8	-166.1	64.1	-71.8	-0.6	12.6	-11.4	72.1	-45.6
9	115.5	-146.9	85.9	-41.5	6.4	-12.5	-47.2	65.8
10	-106.8	58.7	-39.7	19.5	23.4	5.9	75.9	-10.4

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UPPER ROTOR EDGEWISE
BENDING MOMENT .1R

HARMONIC	COS		SIN		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	0.0		-108.6		4814.6		1467.4	
1	0.0	0.0	-79.5	282.9	-2011.0	1467.4	-612.3	
2	0.0	0.0	99.5	14.6	-480.7	-612.3	96.1	
3	0.0	0.0	-120.5	33.6	172.2	96.1	641.2	
4	0.0	0.0	57.4	0.1	36.9	641.2	-418.0	
5	0.0	0.0	-95.3	-60.4	-57.0	-418.0	6.9	
6	0.0	0.0	3.0	7.5	16.4	6.9	-346.0	
7	0.0	0.0	13.3	-5.9	-133.7	-346.0	-89.0	
8	0.0	0.0	-2.4	12.6	82.1	-89.0	-35.1	
9	0.0	0.0	-10.2	-25.7	14.6	-35.1	39.9	
10	0.0	0.0	34.1	-22.8	-48.1	39.9		

PUN 23 PUNT 9 OMEG*R = 597.3 ALFS,C = 5.8 CLR/S,R = 0.11436 CMY/S,R = 0.1579
 VKTS = 105.6 RHU100 = 0.2251 CP/S = 0.004235 CUR/S,R = 0.01082 CMX/S,R = -0.0040
 V/OR = 0.299

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1359.6		1432.3		1152.6		-135.4	
1	56.6	-1138.3	168.8	-495.9	236.5	-8.0	189.1	372.7
2	-1686.7	453.5	-1209.6	490.1	-984.9	287.8	-391.6	74.0
3	-118.8	-339.5	-110.4	-164.7	-29.5	-77.9	48.9	41.4
4	-51.8	637.0	129.2	359.4	47.7	175.1	-25.8	-115.5
5	-234.4	-2.8	-124.9	68.1	-66.2	43.0	29.8	-6.3
6	-48.7	747.9	183.1	399.7	34.4	216.9	-4.9	-75.0
7	359.0	174.6	228.9	-24.8	81.7	2.9	-32.6	-11.9
8	-118.5	-217.5	-92.9	-23.2	1.1	26.4	13.1	13.8
9	-154.9	-30.2	-61.1	28.1	-7.2	-13.9	22.4	1.3
10	-68.8	116.3	16.6	54.8	-1.3	-2.1	5.3	-13.0

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

	COS	SIN
0	-4836.6	
1	2771.2	739.5
2	1131.0	-1373.8
3	204.5	172.8
4	-13.8	31.9
5	35.5	78.1
6	-136.7	-140.4
7	1361.8	610.1
8	-45.2	-45.9
9	1.3	-32.7
10	-27.5	24.9

LOWER ROTOR PITCH LINK LOAD

	COS	SIN
0	-89.0	
1	-192.8	134.0
2	-38.4	47.9
3	-20.7	-46.0
4	-2.6	-14.2
5	30.7	-3.7
6	72.4	29.0
7	9.1	6.5
8	-10.8	29.4
9	-22.5	18.0
10	12.4	-20.1

PUN 23 PUNT 9
 VTS = 105.6
 V/OR = 0.299
 CMY/S,R = 0.1579
 CMX/S,R = -0.0040
 CLR/S,R = 0.11436
 CDR/S,R = 0.01082
 ALFS,C = 5.8
 CP/S = 0.004235
 CMY/S,R = 0.11436
 CMX/S,R = -0.01082

PSI	UPPER ROTOR BLADE NORMAL		BENDING MOMENT		UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
	.1R	.2R	.3R	.6R			
0.00	171.	2440.	656.	-778.	0.	-209.	2406.
11.25	-189.	1859.	255.	-807.	0.	-218.	2323.
22.50	356.	1915.	387.	-1198.	0.	-25.	3085.
33.75	1551.	2714.	958.	-1551.	0.	167.	4081.
45.00	2755.	3566.	1330.	-1467.	0.	167.	4314.
56.25	3276.	3867.	1382.	-798.	0.	174.	3922.
67.50	3362.	3913.	1505.	3.	0.	163.	4208.
78.75	3845.	4260.	1823.	161.	0.	2.	5516.
90.00	4877.	4901.	2151.	-281.	0.	-21.	6710.
101.25	5795.	5435.	2258.	-546.	0.	146.	7407.
112.50	5448.	5276.	1973.	-231.	0.	116.	8275.
123.75	3559.	4221.	1500.	179.	0.	-39.	9016.
135.00	2317.	3332.	1267.	-411.	0.	1.	8648.
146.25	3401.	3654.	1241.	-2247.	0.	78.	7298.
157.50	4362.	4172.	1052.	-3691.	0.	83.	6035.
168.75	2657.	3412.	616.	-3451.	0.	227.	5756.
180.00	80.	1970.	68.	-2604.	0.	375.	6436.
191.25	-1216.	1084.	-436.	-2247.	0.	250.	6866.
202.50	-1813.	720.	-632.	-1797.	0.	-35.	6115.
213.75	-1887.	689.	-429.	-1066.	0.	-318.	4926.
225.00	-950.	1198.	-79.	-588.	0.	-535.	4247.
236.25	-118.	1839.	245.	67.	0.	-543.	3889.
247.50	-18.	2156.	590.	1294.	0.	-400.	3697.
258.75	414.	2477.	941.	2419.	0.	-341.	3893.
270.00	1148.	2982.	1293.	3248.	0.	-359.	4182.
281.25	1281.	3307.	1596.	4088.	0.	-400.	4224.
292.50	1184.	3348.	1654.	4439.	0.	-480.	4020.
303.75	1275.	3233.	1447.	3921.	0.	-456.	3300.
315.00	1221.	3021.	1243.	2942.	0.	-307.	2230.
326.25	1229.	2933.	1193.	1609.	0.	-256.	1874.
337.50	1395.	3056.	1198.	88.	0.	-271.	2425.
348.75	1019.	2982.	1064.	-764.	0.	-211.	2740.

RUN 23
 VKTS =
 V/OR =

PUNT 9
 105.6
 0.299

OMEGAR = 597.3
 RHO100 = 0.2251

ALFS,C = 5.8
 CP/S = 0.004235

CLR/S,R = 0.11436
 CDR/S,R = 0.01082

CNY/S,R = 0.1579
 CMX/S,R = -0.0040

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	3918.	2966.	1738.	-425.	-3439.	-252.	
288.75	2582.	2531.	1687.	-164.	-6102.	-232.	
277.50	2726.	2239.	1846.	-33.	-6478.	-311.	
266.25	4619.	3029.	2151.	-141.	-5684.	-315.	
255.00	4841.	3621.	2210.	-183.	-5713.	-131.	
243.75	2899.	2859.	1843.	-99.	-5179.	5.	
232.50	1691.	1736.	1279.	-166.	-9955.	-15.	
221.25	2109.	1425.	902.	-444.	-8250.	-4.	
210.00	2674.	1681.	837.	-749.	-6762.	57.	
198.75	2263.	1722.	789.	-938.	-7533.	79.	
187.50	713.	1083.	417.	-922.	-8795.	122.	
176.25	-1030.	-6.	-144.	-716.	-7547.	127.	
165.00	-1721.	-702.	-407.	-474.	-4512.	12.	
153.75	-1487.	-644.	-170.	-279.	-3461.	-22.	
142.50	-870.	-220.	315.	-100.	-5220.	95.	
131.25	296.	436.	811.	48.	-6379.	120.	
120.00	1525.	1330.	1329.	169.	-4994.	65.	
108.75	1928.	2004.	1841.	321.	-3500.	97.	
97.50	1891.	2220.	2167.	494.	-4427.	93.	
86.25	2058.	2297.	2261.	612.	-6446.	24.	
75.00	2086.	2352.	2216.	648.	-6541.	109.	
63.75	1611.	2173.	2013.	611.	-4490.	216.	
52.50	801.	1676.	1624.	519.	-3019.	35.	
41.25	268.	1123.	1259.	344.	-3471.	-265.	
30.00	622.	1005.	1124.	42.	-3764.	-350.	
18.75	1049.	1270.	1069.	-252.	-2037.	-262.	
7.50	213.	1087.	790.	-327.	121.	-217.	
356.25	-1045.	262.	296.	-259.	179.	-284.	
345.00	-1087.	-262.	-13.	-257.	-1468.	-382.	
333.75	-17.	95.	247.	-321.	-2261.	-401.	
322.50	1731.	1105.	970.	-401.	-1418.	-353.	
311.25	3650.	2343.	1587.	-491.	-1224.	-307.	

RUN 23 PLINT 10 CMY/S,R = 0.1814
 VKTS = 106.1 OMEG#R = 597.3 CLR/S,R = 0.13524
 V/DR = 0.300 RHJ100 = 0.2247 CP/S = 0.006703 CDR/S,R = 0.01160
 CMA/S,R = -0.0068

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	3756.9	4753.4	4528.7	2902.2	2042.6	1710.9	750.8	-323.8
1	-699.0	-1586.9	-431.5	-1205.0	-91.4	-791.1	647.2	-1166.8
2	-1353.9	-58.5	-949.7	-57.4	-739.3	3.6	-2182.3	231.9
3	-287.5	-541.2	-151.3	-284.7	-92.3	-123.9	37.3	418.8
4	14.4	-78.9	87.6	-195.7	17.5	-76.8	-17.9	67.7
5	-914.1	-720.1	-476.2	-433.4	-213.7	-207.5	654.3	443.7
6	-8.2	216.1	108.6	63.1	-21.0	-33.3	180.7	-3.0
7	56.1	218.0	68.2	45.1	41.4	-37.3	-82.6	-157.2
8	-114.6	24.2	-65.3	103.8	31.6	-16.1	9.5	-12.3
9	470.1	99.5	185.0	20.5	1.4	-10.4	-312.0	-1.7
10	-135.4		-34.2		60.8		58.1	

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-45.7	382.5	5279.1	1288.7
1	0.0	0.0	-111.0	-19.5	-3516.3	-525.8
2	0.0	0.0	107.2	36.8	-389.8	-31.1
3	0.0	0.0	-15.5	39.3	297.2	718.3
4	0.0	0.0	-8.3	-72.9	-211.7	-152.0
5	0.0	0.0	10.6	-13.9	224.7	84.8
6	0.0	0.0	15.4	177.5	26.7	-401.1
7	0.0	0.0	-116.4	-55.6	-32.5	-12.5
8	0.0	0.0	20.4	85.7	223.0	-69.1
9	0.0	0.0	2.2	-54.1	44.9	66.4
10	0.0	0.0	11.6		26.7	

RUN 23 PGINT 10 OMEGAR = 597.3 ALFS,C = 6.0 CLR/S,R = 0.13524 CMY/S,R = 0.1814
 VKTS = 100.1 RHD100 = 0.2247 CP/S = 0.006703 CDR/S,R = 0.01160 CMX/S,R = -0.0068
 V/CIR = 0.300

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	-1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	3991.9	-3797.2	3313.1	-2295.0	2423.7	-1257.2	26.3	175.0
1	-465.0	891.7	-355.4	875.8	-97.7	559.8	142.4	129.6
2	-2186.5	-154.8	-1499.9	-23.0	-1213.5	-14.1	-464.5	5.5
3	-368.4	922.3	-217.8	593.7	-85.6	273.3	68.9	-160.5
4	-464.3	322.8	-48.9	269.7	-59.5	140.3	29.5	-43.7
5	-374.5	794.1	-126.3	378.3	-91.5	220.8	41.2	-79.2
6	131.6	-159.8	293.3	-200.5	97.0	-58.4	-19.0	19.5
7	427.9	-301.5	115.1	-81.7	28.9	15.1	-32.1	30.5
8	-30.4	15.4	-75.9	21.8	21.1	3.5	6.6	1.6
9	-29.2	84.6	-4.8	51.9	1.2	13.9	7.7	-16.4
10	-18.9		14.8		-24.2		3.2	

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	LOWER ROTOR PITCH LINK LOAD	
	COS	SIN
0	-4647.9	2465.4
1	3772.5	-1673.9
2	1433.1	87.6
3	370.0	87.7
4	16.6	12.4
5	-11.0	-110.6
6	-137.2	-472.8
7	431.8	8.6
8	-118.7	18.9
9	-7.1	-15.6
10	-12.5	

RUN: 23
VKTS =
V/CR =

POINT 10
106.1
3.300

OMEGAR = 597.3
RHU100 = 0.2247

ALFS,C = 6.0
CP/S = 0.006703

CLR/S,R =0.13524
CDR/S,R =0.01160

CNY/S, R = 0.1814
CAX/S, R = -0.0068

UPPER KLITAK
SHAFT STAKES

WE PITCH
LINK LOAD

UR EDGEWISE
BENDING - LR

BENDING MOMENT

UPPER RUTUR BLADE NORMAL
.1K .2R

.IK

PSI

PSI	0.00
	11.25
	22.50
	33.75
	45.00
	56.25
	67.50
	78.75
	90.00
	101.25
	112.50
	123.75
	135.00
	146.25
	157.50
	168.75
	180.00
	191.25
	202.50
	213.75
	225.00
	236.25
	247.50
	258.75
	270.00
	281.25
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	315.00
	326.25
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-571.
-660.
-361.
-185.
-238.
-236.

1972.
1758.
2067.
3144.
3554.
3202.
3829.
5641.
7126.
7932.
8818.
9851.
10336.
9509.
7813.
7074.
7936.
8648.
8138.
7369.
6785.
5826.
4756.
4224.
4127.
4161.
4075.
3423.
2180.
1097.
954.
1597.

RUN 23 POINT 10 OMEGAR = 597.3 ALFS,C = 6.0 CLR/S,R = 0.13524 CMY/S,R = 0.1814
 VKTS = 106.1 RHJ100 = 0.2247 CP/S = 0.006703 CDR/S,R = 0.01160 CMX/S,R = -0.0068
 V/OR = 0.300

PSI	LOWER ROTOR BLADE NORMAL		BENDING MOMENT		LR EDGEWISE BENDING .LR	LR PITCH LINK LOAD	
	.LR	.2R	.3R	.6R			
300.00	9733.	6717.	4175.	-299.	-3921.	-45.	-45.
288.75	8246.	6525.	4255.	107.	-5921.	-321.	-321.
277.50	7673.	5926.	4356.	421.	-8072.	-266.	-266.
266.25	9422.	6472.	4689.	404.	-9118.	-105.	-105.
255.00	10579.	7410.	4937.	325.	-9340.	-142.	-142.
243.75	9304.	7222.	4809.	336.	-10020.	53.	53.
232.50	7512.	6109.	4243.	238.	-11076.	242.	242.
221.25	6995.	5208.	3494.	-55.	-11003.	63.	63.
210.00	7040.	4893.	3001.	-418.	-9564.	31.	31.
198.75	6156.	4613.	2702.	-695.	-8396.	227.	227.
187.50	3945.	3634.	2095.	-753.	-8223.	194.	194.
176.25	1480.	2036.	1185.	-603.	-7722.	107.	107.
165.00	51.	758.	529.	-419.	-5984.	130.	130.
153.75	-219.	353.	434.	-270.	-4109.	88.	88.
142.50	253.	606.	785.	-122.	-3517.	173.	173.
131.25	1204.	1223.	1279.	6.	-3941.	322.	322.
120.00	1936.	1849.	1644.	155.	-3959.	187.	187.
108.75	2032.	2155.	1934.	383.	-3148.	151.	151.
97.50	2176.	2378.	2300.	581.	-2726.	389.	389.
86.25	2502.	2693.	2521.	674.	-3514.	322.	322.
75.00	2214.	2664.	2405.	741.	-4402.	153.	153.
63.75	1645.	2280.	2200.	739.	-3950.	306.	306.
52.50	1799.	2138.	2070.	544.	-2437.	184.	184.
41.25	2353.	2292.	1934.	223.	-1169.	-178.	-178.
30.00	2487.	2383.	1846.	-67.	-670.	-7.	-7.
18.75	2119.	2303.	1755.	-241.	-342.	130.	130.
7.50	1305.	1897.	1379.	-244.	455.	-322.	-322.
356.25	313.	1148.	830.	-128.	1307.	-432.	-432.
345.00	105.	701.	663.	-45.	1071.	-162.	-162.
333.75	1657.	1253.	1214.	-73.	-439.	-431.	-431.
322.50	5062.	2947.	2351.	-218.	-2002.	-659.	-659.
311.25	8662.	5233.	3542.	-387.	-2880.	-222.	-222.

PUN 23 POINT 11 CMV/S,R = 0.1888
 VKTS = 106.4 CMR/S,R = 0.14505
 V/OR = 0.300 RHE100 = 0.2231 CP/S = 0.009078 CDR/S,R = 0.01129

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	4585.5		5113.5		2486.8		1063.5	
1	-422.5	5433.8	-251.6	3351.5	35.7	1999.2	699.3	-59.1
2	-1776.4	-2029.3	-1212.9	-1546.1	-939.3	-1029.3	-2585.9	-1426.7
3	-408.0	-204.3	-187.1	-153.7	-88.3	-51.0	400.5	85.1
4	-34.9	-346.0	56.7	-191.5	22.3	-74.4	63.5	278.5
5	-1177.8	-36.0	-627.4	-205.6	-280.7	-53.8	867.4	1.6
6	-51.8	-730.2	100.2	-441.6	-23.3	-202.4	196.2	431.0
7	-2.2	302.1	41.9	86.0	56.4	-25.1	-65.8	-84.8
8	-33.7	390.3	-64.5	86.4	29.3	-87.8	-48.0	-289.4
9	799.8	169.5	265.6	226.1	-6.5	-26.1	-517.9	-86.0
10	-125.7	170.8	-43.1	40.7	69.5	-21.7	76.5	-40.5

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-149.2		5775.2	
1	0.0	0.0	-106.0	428.2	-2692.8	-794.6
2	0.0	0.0	128.3	-38.0	-242.9	-645.5
3	0.0	0.0	19.8	31.2	177.6	-198.6
4	0.0	0.0	4.6	59.2	-428.8	642.6
5	0.0	0.0	23.5	-92.6	377.3	-66.2
6	0.0	0.0	-11.5	-37.5	125.3	101.4
7	0.0	0.0	-167.6	238.7	6.9	-575.1
8	0.0	0.0	11.3	-114.6	199.6	-228.1
9	0.0	0.0	62.2	79.6	46.5	-108.0
10	0.0	0.0	-21.0	-70.3	57.8	-12.9

PUN 23 PUNT 11
 VKTS = 106.4 OMEG*R = 598.1 ALFS,C = 6.0 CLR/S,R = 0.14505 CMY/S,R = 0.1888
 V/CR = 0.300 RHU100 = 0.2231 CP/S = 0.009078 CDR/S,R = 0.01129 CMX/S,R = -0.0126

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	5556.9	-5708.5	4588.2	-3642.2	3236.3	-2196.0	139.5	21.9
1	-225.8	1379.0	-313.1	1221.3	-74.2	805.6	111.5	155.6
2	-2231.4	-20.0	-1473.7	79.6	-1209.2	35.1	-465.3	-8.2
3	-538.9	1092.5	-305.8	704.2	-141.1	321.5	131.7	-175.7
4	-594.3	-78.1	-85.2	36.7	-70.8	31.3	66.9	8.0
5	-283.1	686.3	-173.6	278.7	-82.9	189.5	42.4	-67.6
6	312.0	-308.9	375.3	-302.9	156.6	-86.3	-28.6	35.9
7	522.7	-157.5	72.8	-45.1	-1.4	5.0	-41.4	17.8
8	-15.9	281.1	-37.2	109.1	12.8	1.0	-1.9	-21.9
9	-44.0	152.2	53.1	96.7	-15.8	11.5	7.3	-22.9
10	-88.7		7.1		-32.4		12.4	

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HARMONIC	LOWER ROTOR BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-4138.8	3795.1	81.7	225.7
1	4532.9	-1718.2	-230.8	107.7
2	1182.6	-4.3	-54.1	29.7
3	416.9	-10.3	51.6	53.4
4	26.8	29.2	-22.2	28.8
5	-44.5	-143.0	25.3	4.9
6	-150.9	-1047.8	38.0	-73.5
7	-766.9	-132.0	-9.8	-7.6
8	-138.3	-13.3	0.4	-129.0
9	-96.8	-71.1	-52.3	-87.0
10			-121.6	

POINT	11	CMEG#R = 598.1	ALFS,C = 6.0	CLR/S,R = 0.14505	CMY/S,R = 0.1888		
106.4	RHJ100 = 0.2231	CP/S = 0.009078	CDR/S,R = 0.01129	CMX/S,R = -0.0126			
0.300							
UPPER ROTOR	BLADE	NORMAL	BENDING	MUMENT	UR EDGEWISE	UR PITCH	UPPER ROTOR
.1R	.2R	.3R	.6R	BENDING .1K	LINK LOAD	SHAFT STRESS	
PSI							
0.00	1352.	3191.	1362.	149.	0.	-206.	3402.
11.25	1615.	2986.	943.	-54.	0.	6.	2053.
22.50	2146.	3203.	1560.	-242.	0.	175.	2200.
33.75	5315.	4958.	2747.	-1468.	0.	49.	3272.
45.00	8474.	7050.	3381.	-1745.	0.	-116.	3060.
56.25	8377.	7484.	3625.	577.	0.	22.	2277.
67.50	8080.	7317.	4078.	3015.	0.	232.	2928.
78.75	10073.	6299.	4689.	3456.	0.	184.	4490.
90.00	11940.	9701.	5427.	3248.	0.	-84.	5411.
101.25	13049.	10619.	6089.	3258.	0.	-159.	5816.
112.50	13889.	11044.	6007.	3078.	0.	352.	6697.
123.75	11891.	10120.	5218.	3403.	0.	852.	8162.
135.00	7958.	7946.	4436.	3681.	0.	386.	9097.
146.25	7248.	6818.	3833.	1691.	0.	-302.	8411.
157.50	8647.	7151.	3299.	-1462.	0.	68.	6894.
168.75	7039.	6597.	2789.	-2677.	0.	618.	6513.
180.00	3774.	4709.	1929.	-2618.	0.	131.	7571.
191.25	1985.	3168.	773.	-2971.	0.	-427.	8616.
202.50	-5.	2105.	102.	-2371.	0.	-157.	8882.
213.75	-2182.	1001.	-13.	-657.	0.	52.	8678.
225.00	-1558.	808.	-91.	-148.	0.	-311.	8228.
236.25	288.	1750.	64.	-247.	0.	-708.	7565.
247.50	-33.	2349.	668.	1343.	0.	-906.	6789.
258.75	-604.	2314.	1201.	3262.	0.	-803.	6068.
270.00	1001.	2822.	1436.	3536.	0.	-374.	5801.
281.25	2177.	3645.	1644.	3831.	0.	-294.	5308.
292.50	1063.	3594.	1864.	5096.	0.	-774.	7093.
303.75	877.	3327.	2072.	4742.	0.	-937.	6931.
315.00	3472.	4166.	2249.	2019.	0.	-529.	5230.
326.25	5067.	5129.	2222.	108.	0.	-248.	3330.
337.50	3166.	4661.	2083.	436.	0.	-272.	3121.
348.75	1152.	3601.	1892.	762.	0.	-292.	3911.

RUN 23 VKTS = 106.4 POINT 11 OMEG*R = 598.1 ALFS,C = 6.0 CLR/S,R = 0.14505 CMY/S,R = 0.1888
 V/CR = 0.300 RHU100 = 0.2231 CP/S = 0.009078 CDR/S,R = 0.01129 CMX/S,R = -0.0126

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	13088.	8927.	5711.	-143.	-4024.	-111.	
288.75	12302.	9326.	6011.	264.	-5271.	-389.	
277.50	11369.	8750.	6171.	644.	-8258.	-97.	
266.25	12791.	9082.	6488.	693.	-10663.	-12.	
255.00	14051.	9999.	6699.	647.	-10951.	-190.	
243.75	12674.	9842.	6540.	674.	-10292.	172.	
232.50	10458.	8567.	5919.	577.	-10735.	452.	
221.25	9758.	7419.	5061.	243.	-11987.	113.	
210.00	9978.	7026.	4446.	-210.	-11818.	79.	
198.75	8948.	6754.	4034.	-565.	-9780.	356.	
187.50	5906.	5487.	3233.	-628.	-7857.	279.	
176.25	2442.	3263.	1970.	-463.	-7234.	106.	
165.00	260.	1327.	880.	-292.	-6780.	159.	
153.75	-449.	467.	480.	-188.	-5031.	243.	
142.50	126.	634.	759.	-127.	-2578.	390.	
131.25	1321.	1418.	1270.	-73.	-1574.	467.	
120.00	1621.	1939.	1548.	109.	-2397.	317.	
108.75	1181.	1849.	1675.	402.	-2686.	347.	
97.50	1456.	1967.	1946.	596.	-1261.	482.	
86.25	1799.	2413.	2228.	702.	-196.	269.	
75.00	1480.	2428.	2359.	799.	-1107.	165.	
63.75	2189.	2487.	2485.	688.	-2412.	342.	
52.50	3844.	3232.	2580.	352.	-1759.	156.	
41.25	3976.	3664.	2522.	107.	714.	-15.	
30.00	3092.	3299.	2453.	3.	2329.	298.	
18.75	3142.	3095.	2360.	-110.	1385.	180.	
7.50	3045.	3031.	2036.	-116.	159.	-333.	
356.25	2028.	2497.	1688.	24.	1437.	-161.	
345.00	2041.	2220.	1709.	89.	3106.	-11.	
333.75	3948.	2963.	2238.	35.	1407.	-631.	
322.50	7095.	4575.	3332.	-66.	-2288.	-727.	
311.25	10058.	6871.	4733.	-202.	-4037.	-100.	

RUN 23
 VKTS = 106.8
 V/CP = 0.300
 POINT 12
 CMY/S,R = 0.1607
 CMX/S,R = -0.0055
 CLR/S,R = 0.09322
 CDK/S,R = 0.01567
 ALFS,C = 8.2
 CP/S = 0.001055
 MEG#R = 600.5
 RHU100 = 0.2214

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1851.2		639.2		-708.6		-1626.4	
1	272.1	-98.2	435.6	-391.6	447.5	-526.8	1206.0	-2404.7
2	-260.6	-684.3	-180.7	-438.7	-196.5	-262.0	-832.4	-399.2
3	55.7	143.3	42.9	97.9	25.1	59.4	-103.0	218.4
4	421.4	-388.4	287.8	-185.7	119.9	-106.0	-314.4	367.6
5	-567.5	524.7	-364.7	199.7	-129.4	88.2	404.0	-364.8
6	-1.6	-404.3	50.6	-230.6	5.1	-117.0	102.2	240.9
7	70.5	290.1	45.6	57.7	55.5	-63.9	-21.7	-88.4
8	-350.6	-80.9	-124.7	-49.1	-1.0	37.5	195.6	9.0
9	80.5	-571.1	165.8	-221.1	0.2	-9.2	22.0	399.0
10	-170.2	113.9	-63.9	1.1	34.7	-10.3	101.2	31.8

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HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-481.2		5000.4	
1	0.0	0.0	-31.2	239.0	-3385.2	735.8
2	0.0	0.0	-6.3	20.0	-730.9	-650.1
3	0.0	0.0	-57.3	29.4	309.7	-4.9
4	0.0	0.0	-58.5	-30.7	-8.1	502.1
5	0.0	0.0	43.5	-85.1	234.1	-430.2
6	0.0	0.0	27.4	52.2	-57.6	46.3
7	0.0	0.0	-68.4	90.1	-126.0	-447.7
8	0.0	0.0	-36.2	74.3	69.9	296.1
9	0.0	0.0	22.6	-4.9	-0.0	-89.5
10	0.0	0.0	9.3	-0.7	-47.6	19.2

RUN 23 PUN 12 VKTS = 106.8 OMEG*R = 600.5 ALFS,C = 8.2 CLR/S,R = 0.09322 CMY/S,R = 0.1807
 V/OR = 0.300 RHU100 = 0.2214 CP/S = 0.001055 CDR/S,R = 0.01567 CMX/S,R = -0.0055

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-256.9		436.5		403.6		-249.3	
1	-1161.6	824.4	-552.7	957.7	-265.8	990.9	109.1	523.8
2	-1356.4	496.4	-978.4	458.5	-826.8	246.1	-360.8	27.1
3	102.5	-159.1	44.9	-89.7	37.9	-23.3	14.1	3.9
4	358.0	526.5	318.6	234.0	144.2	152.9	-85.6	-70.9
5	-148.8	-28.4	-77.6	40.0	-29.8	32.9	18.2	1.1
6	-80.2	533.3	101.9	301.7	13.1	157.4	4.0	-53.4
7	284.0	124.8	172.1	-72.2	65.4	-56.4	-28.4	-5.8
8	-65.7	-193.5	-58.5	-33.6	17.5	14.2	9.1	11.6
9	-12.5	137.2	18.3	18.0	-16.0	-23.4	3.5	-7.3
10	23.4	99.2	30.8	23.4	-5.6	6.8	-0.1	-11.5

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	BENDING MOMENT .1R		PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5027.7		-119.2	
1	2409.8	-246.5	-194.9	151.0
2	1288.6	-1032.1	-22.3	34.7
3	116.4	130.2	-5.0	-48.0
4	32.9	62.9	-2.1	-9.6
5	67.5	24.5	27.2	4.2
6	-51.5	-63.4	42.8	15.4
7	1304.7	-240.0	-0.2	4.1
8	-18.3	28.6	1.9	14.6
9	-26.7	-22.2	18.4	15.1
10	3.7	4.1	48.7	35.6

FUN: 23
 VKTS =
 V/C/R =
 PCINT 12
 100.8
 0.300
 CMX/S,R = 0.1807
 CMX/S,R = -0.0055
 CLR/S,R = 0.09322
 CDR/S,R = 0.01567
 ALFS,C = 8.2
 CP/S = 0.001055
 600.5
 0.2214
 CMX/S,R = 0.1807
 CMX/S,R = -0.0055
 CLR/S,R = 0.09322
 CDR/S,R = 0.01567

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT .1R	.2R	.3R	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-2302.	934.	-348.	-867.	0.	-636.	1259.
11.25	-2398.	380.	-742.	-1283.	0.	-410.	1078.
22.50	-1543.	581.	-907.	-2643.	0.	-403.	1310.
33.75	-1920.	693.	-840.	-2746.	0.	-489.	1901.
45.00	-3076.	159.	-909.	-2028.	0.	-354.	2608.
56.25	-2968.	-189.	-1135.	-2422.	0.	-19.	3083.
67.50	-1980.	85.	-1282.	-3278.	0.	96.	3628.
78.75	-1861.	320.	-1203.	-3382.	0.	-224.	4912.
90.00	-1925.	423.	-876.	-3617.	0.	-577.	6567.
101.25	-632.	967.	-665.	-4385.	0.	-532.	7619.
112.50	3.	1243.	-987.	-4133.	0.	-266.	8148.
123.75	-2268.	224.	-1463.	-2601.	0.	-152.	8939.
135.00	-4066.	-797.	-1458.	-2092.	0.	-199.	9697.
146.25	-2045.	-64.	-1155.	-3603.	0.	-281.	9104.
157.50	234.	1174.	-1015.	-4949.	0.	-395.	7151.
168.75	-619.	1027.	-1028.	-4645.	0.	-482.	6066.
180.00	-2124.	283.	-1145.	-3881.	0.	-455.	7194.
191.25	-2832.	-61.	-1403.	-3216.	0.	-417.	8479.
202.50	-4061.	-609.	-1576.	-1999.	0.	-506.	7789.
213.75	-4319.	-970.	-1454.	-1145.	0.	-624.	6437.
225.00	-2502.	-119.	-1060.	-1421.	0.	-630.	6194.
236.25	-1474.	940.	-518.	-1196.	0.	-633.	6101.
247.50	-1820.	1103.	-109.	94.	0.	-761.	5232.
258.75	-1243.	1213.	-20.	882.	0.	-818.	4757.
270.00	-770.	1565.	10.	1384.	0.	-636.	5229.
281.25	-1773.	1364.	164.	2564.	0.	-521.	5407.
292.50	-1955.	1098.	215.	2958.	0.	-728.	4483.
303.75	-864.	1468.	134.	1879.	0.	-879.	2983.
315.00	-848.	1665.	109.	1075.	0.	-654.	1814.
326.25	-1334.	1385.	84.	601.	0.	-443.	1501.
337.50	-893.	1437.	-1.	-626.	0.	-598.	1702.
348.75	-1069.	1533.	-95.	-1326.	0.	-777.	1639.

PUN 23 PUNT 12 CMY/S,R = 0.1807 CLR/S,R = 0.09322 CMX/S,R = -0.0055
 VKTS = 106.8 OMEG*R = 600.5 ALFS,C = 8.2 CDR/S,R = 0.01567
 V/CP = 0.300 RHJ100 = 0.2214 CP/S = 0.001055

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD
	.LR	.2R	.3R	.6R		
300.00	-987.	-287.	-253.	-547.	-2562.	-338.
288.75	-1051.	-237.	-192.	-457.	-5076.	-257.
277.50	-561.	-90.	46.	-428.	-6394.	-378.
266.25	1045.	665.	418.	-525.	-5843.	-366.
255.00	1656.	1304.	532.	-551.	-5729.	-177.
243.75	216.	894.	305.	-435.	-7366.	-108.
232.50	-899.	28.	-14.	-398.	-8829.	-65.
221.25	-95.	-111.	-180.	-569.	-8082.	27.
210.00	1062.	473.	-58.	-814.	-6265.	9.
198.75	1001.	890.	190.	-953.	-5954.	13.
187.50	108.	642.	161.	-911.	-7207.	112.
176.25	-637.	56.	-153.	-730.	-7485.	70.
165.00	-916.	-219.	-229.	-508.	-5695.	-16.
153.75	-887.	-15.	178.	-269.	-4169.	52.
142.50	-386.	396.	728.	-227.	-5139.	80.
131.25	798.	985.	1157.	163.	-7074.	46.
120.00	1913.	1762.	1583.	284.	-7049.	118.
108.75	2235.	2377.	2076.	410.	-5482.	113.
97.50	2312.	2653.	2425.	515.	-5312.	3.
86.25	2400.	2716.	2422.	563.	-7021.	69.
75.00	1729.	2432.	2103.	594.	-7814.	150.
63.75	497.	1729.	1643.	585.	-6125.	15.
52.50	-363.	1005.	1174.	462.	-3964.	-91.
41.25	-866.	515.	779.	240.	-3607.	-160.
30.00	-1106.	206.	500.	-54.	-4145.	-350.
18.75	-966.	86.	248.	-369.	-3201.	-363.
7.50	-1395.	-121.	-128.	-553.	-895.	-185.
356.25	-2837.	-839.	-641.	-553.	179.	-271.
345.00	-3603.	-1711.	-1117.	-516.	-1087.	-459.
333.75	-3417.	-1961.	-1284.	-524.	-2607.	-375.
322.50	-2475.	-1490.	-955.	-543.	-2355.	-319.
311.25	-1543.	-767.	-508.	-565.	-1530.	-414.

HUN 23 PCINT 13 CMY/S,R = 0.2212
 VKTS = 107.0 UMEG#R = 601.7 ALFS,C = 8.5 CLR/S,R = 0.1312
 V/CR = 0.300 RHU100 = 0.2210 CP/S = 0.007816 CDR/S,R = 0.01550 CMX/S,R = -0.0151

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.0R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1751.5		3239.1		1144.1		-13.1	
1	2965.1	961.4	2285.0	362.3	1757.1	-84.5	2209.7	-2259.5
2	-1742.4	-2070.0	-1123.5	-1495.6	-869.8	-961.1	-2102.5	1636.4
3	-200.2	23.3	-57.7	1.1	-0.7	59.1	198.9	389.7
4	-401.9	-618.4	-98.7	-375.2	-44.7	-149.3	645.7	519.1
5	-843.9	396.9	-502.9	62.3	-209.9	20.5	646.4	-192.1
6	-124.6	-799.6	84.7	-461.6	5.7	-206.8	183.5	499.8
7	320.1	281.6	181.4	84.9	75.6	-56.6	-239.7	15.3
8	-265.8	151.8	-114.1	15.1	15.3	-28.0	86.6	157.9
9	340.0	-422.7	234.9	-104.6	0.6	-24.1	-129.1	264.1
10	-25.1	165.8	7.1	52.6	56.5	-27.3	97.1	16.5

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

UPPER ROTOR SHAFT STRESS

HARMONIC

HARMONIC	BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-407.8		6002.0	
1	0.0	0.0	-125.1	338.6	-2439.6	-3869.1
2	0.0	0.0	168.8	-1.6	-326.7	-661.5
3	0.0	0.0	-166.4	53.2	529.8	-406.3
4	0.0	0.0	15.0	-17.4	16.0	398.1
5	0.0	0.0	-26.8	-72.5	93.8	-161.9
6	0.0	0.0	-19.0	-14.9	31.4	151.6
7	0.0	0.0	-44.1	29.8	-264.6	-530.4
8	0.0	0.0	7.0	-4.8	57.7	3.7
9	0.0	0.0	-3.1	-13.2	34.4	-60.8
10	0.0	0.0	33.9	-31.9	-8.5	29.1

RUN 23
 VKTS = 107.0
 V/OR = 0.300
 PUINT 13
 OMEGPR = 601.7
 RH0100 = 0.2210
 ALFS,C = 8.5
 CP/S = 0.007816
 CLR/S,R = 0.13127
 CDR/S,R = 0.01556
 CMY/S,R = 0.2212
 CMX/S,R = -0.0151

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	5436.1	-3017.7	4492.2	-1448.9	3138.2	-759.9	88.1	224.5
1	-3839.6	680.4	-2747.2	799.2	-1852.2	417.9	-267.9	-73.4
2	-2890.5	-169.9	-2032.4	22.6	-1653.3	20.8	-616.5	44.2
3	-597.1	698.5	-375.4	447.3	-187.3	179.6	154.3	-133.1
4	-426.1	-132.7	-76.9	-89.5	-66.1	-21.1	50.2	22.3
5	68.2	676.4	21.0	311.3	22.2	206.5	3.4	-54.3
6	187.1	67.9	298.1	-176.9	103.1	-30.0	-37.4	18.0
7	660.6	-138.4	230.0	-64.6	18.6	9.7	-64.4	14.7
8	82.3	-401.2	1.1	-175.4	16.7	-2.8	-9.4	43.9
9	211.8	53.8	-60.7	25.4	15.1	17.2	-7.7	-11.5
10	5.8		25.0		-3.2		1.9	

LOWER ROTOR EDGEWISE BENDING MOMENT .1R

LOWER ROTOR PITCH LINK LOAD

HARMONIC	BENDING MOMENT .1R		PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-3815.8	6106.3	178.3	293.0
1	4537.4	-649.7	-266.9	60.5
2	3469.1	475.1	-47.9	110.7
3	430.7	-39.9	110.5	42.1
4	-189.8	-30.6	-35.1	53.6
5	73.7	-102.3	44.0	22.3
6	-89.6	-926.8	26.2	-58.2
7	-898.8	-82.5	48.2	-14.7
8	37.0	106.7	-19.4	-191.7
9	138.3	-33.2	-14.9	-27.3
10	13.7		16.2	

RUN 23 PCINT 13 UMEGR = 601.7 ALFS,C = 8.5 CLR/S,R = 0.13127 CMY/S,R = 0.2212
 VFTS = 107.0 RHU100 = 0.2210 CP/S = 0.007816 CDR/S,R = 0.01556 CMX/S,R = -0.0151
 V/CR =

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT			UR EDGEWISE BENDING .IN	UR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS
	.1K	.2R	.3R				
0.00	1773.	4135.	1930.	1583.	0.	-568.	3726.
11.25	821.	2968.	1147.	1154.	0.	-555.	2272.
22.50	1535.	2864.	1176.	-648.	0.	-310.	1654.
33.75	3308.	3967.	1721.	-2456.	0.	-106.	1281.
45.00	4017.	4628.	1858.	-2998.	0.	-122.	354.
56.25	3545.	4279.	1615.	-2212.	0.	-81.	377.
67.50	3300.	3956.	1442.	-742.	0.	-36.	373.
78.75	3222.	3983.	1475.	260.	0.	-229.	2098.
90.00	3627.	4292.	1832.	-52.	0.	-400.	3224.
101.25	5391.	5158.	2186.	-957.	0.	-348.	3639.
112.50	5781.	5440.	1857.	-873.	0.	-291.	4428.
123.75	2582.	3801.	1061.	123.	0.	-238.	5750.
135.00	-378.	1978.	531.	-167.	0.	-114.	6580.
146.25	1139.	2110.	223.	-2539.	0.	-79.	6201.
157.50	2313.	2663.	-178.	-4477.	0.	-46.	5369.
168.75	-390.	1562.	-659.	-4306.	0.	135.	5791.
180.00	-3389.	-146.	-1316.	-3789.	0.	163.	7818.
191.25	-4509.	-1046.	-2003.	-3966.	0.	-90.	9579.
202.50	-5283.	-1469.	-2148.	-3515.	0.	-315.	9774.
213.75	-4904.	-1363.	-1694.	-2622.	0.	-486.	9572.
225.00	-2451.	-143.	-1013.	-2386.	0.	-747.	10165.
236.25	-486.	1453.	-134.	-1427.	0.	-935.	10766.
247.50	-68.	2377.	819.	1244.	0.	-954.	10452.
258.75	824.	2973.	1495.	3729.	0.	-890.	9759.
270.00	2325.	3824.	2013.	5134.	0.	-739.	9535.
281.25	3024.	4597.	2586.	6379.	0.	-664.	9704.
292.50	3562.	5077.	3034.	6713.	0.	-813.	9513.
303.75	5001.	5709.	3305.	5175.	0.	-874.	8471.
315.00	6362.	6433.	3441.	3262.	0.	-680.	7075.
326.25	6300.	6516.	3309.	2199.	0.	-549.	6262.
337.50	4998.	5917.	3030.	1500.	0.	-553.	5991.
348.75	3356.	5161.	2674.	1254.	0.	-536.	5264.

RUN 23 POINT 13
 VKTS = 107.0 OMEG#R = 601.7 ALFS,C = 8.5 CLR/S,R = 0.13127 CMV/S,R = 0.2212
 V/OR = 0.300 RHO100 = 0.2210 CP/S = 0.007816 CDR/S,R = 0.01556 CMX/S,R = -0.0151

PSI	LOWER ROTOR BLADE NORMAL BENDING MUMENT			LR EDGEMISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	8589.	6123.	3827.	-216.	-8225.	-119.	
288.75	8390.	6440.	4508.	256.	-9192.	-313.	
277.50	9865.	6935.	5056.	494.	-11954.	-130.	
266.25	11705.	8069.	5579.	539.	-14656.	61.	
255.00	11770.	8678.	5879.	619.	-14405.	64.	
243.75	10899.	8380.	5797.	612.	-12402.	219.	
232.50	10355.	7865.	5414.	370.	-11668.	396.	
221.25	10227.	7501.	4972.	20.	-11936.	246.	
210.00	10580.	7421.	4717.	-332.	-10919.	95.	
198.75	10408.	7498.	4538.	-597.	-8325.	269.	
187.50	8063.	6774.	4038.	-548.	-5819.	342.	
176.25	5033.	5016.	3261.	-223.	-4631.	125.	
165.00	4332.	3806.	2778.	42.	-4161.	237.	
153.75	5163.	4021.	2889.	213.	-2896.	745.	
142.50	5195.	4544.	3355.	463.	-715.	837.	
131.25	5261.	4745.	3799.	674.	19.	511.	
120.00	6150.	5086.	3962.	743.	-1775.	561.	
108.75	6007.	5263.	3872.	860.	-3336.	757.	
97.50	4714.	4841.	3827.	1032.	-2189.	460.	
86.25	4401.	4519.	3877.	986.	-198.	207.	
75.00	4727.	4576.	3693.	699.	-113.	418.	
63.75	3920.	4201.	3137.	373.	-630.	372.	
52.50	2535.	3236.	2363.	60.	1222.	36.	
41.25	1405.	2251.	1504.	-234.	4636.	203.	
30.00	-88.	1263.	734.	-435.	6108.	482.	
18.75	-1365.	284.	223.	-566.	4950.	163.	
7.50	-1292.	-175.	-172.	-685.	3750.	-86.	
356.25	-1202.	-262.	-567.	-679.	3793.	102.	
345.00	-2042.	-573.	-618.	-479.	3367.	-132.	
333.75	-1057.	-415.	65.	-322.	722.	-711.	
322.50	3424.	1473.	1358.	-416.	-3577.	-608.	
311.25	7783.	4364.	2757.	-501.	-6997.	-107.	

RUN 23
VKTS =
V/OR =

POINT 14
107.0
0.299

OMEGA#R = 604.1
RHU100 = 0.2198

ALFS,C = 8.4
CP/S = 0.004506

CLR/S,R = 0.11709
CDR/S,R = 0.01566

CMY/S,R = 0.2056
CMX/S,R = -0.0071

UPPER ROTOR BLADE NORMAL BENDING MUMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1534.3		3075.8		1028.4		-229.7	
1	-341.8	597.8	35.0	-6.1	217.6	-300.7	1064.0	-2342.0
2	-1239.5	-1334.3	-850.6	-975.4	-689.2	-628.8	-2184.0	-1064.4
3	-65.0	49.8	-29.5	31.1	-38.0	24.6	-258.3	58.7
4	485.8	-911.3	410.8	-419.0	166.6	-200.9	-413.5	894.5
5	-342.2	65.4	-162.0	-20.5	-40.4	-30.1	199.7	21.7
6	220.0	-584.9	205.9	-307.1	54.8	-170.0	-1.4	393.2
7	10.5	296.5	26.2	88.9	37.9	-38.0	-59.4	-52.8
8	-420.2	-164.8	-148.7	-100.9	6.7	47.1	256.3	165.0
9	620.9	-185.4	290.4	59.1	-1.1	-15.0	-366.2	175.8
10	-226.5	29.8	-47.3	-4.6	67.2	28.4	52.5	68.0

UPPER ROTOR EDGEWISE BENDING MUMENT .1R

UPPER ROTOR SHAFT STRESS

UPPER ROTOR PITCH LINK LOAD

UPPER ROTOR STRESS

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HARMONIC

HARMONIC	UPPER ROTOR EDGEWISE BENDING MUMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-459.1		5972.7	
1	0.0	0.0	-167.0	337.9	-2006.2	1079.5
2	0.0	0.0	135.9	-25.7	-618.1	-834.1
3	0.0	0.0	-116.6	41.4	72.7	-26.7
4	0.0	0.0	28.3	-37.7	-224.2	892.1
5	0.0	0.0	-43.0	-76.7	215.8	-232.5
6	0.0	0.0	6.7	-18.0	-34.4	56.3
7	0.0	0.0	-55.5	44.3	-101.8	-281.8
8	0.0	0.0	-13.5	0.3	-18.5	297.8
9	0.0	0.0	24.3	-13.7	18.0	-87.8
10	0.0	0.0	51.4	-15.7	-61.7	14.6

RUN 23
 VKTS =
 V/CR =
 POINT 14
 107.0
 0.299
 OMEG#R = 604.1
 RH0100 = 0.2198
 ALFS,C = 8.4
 CP/S = 0.004506
 CLK/S,R = 0.11709
 CDR/S,R = 0.01566
 CMY/S,R = 0.2056
 CMX/S,R = -0.0071

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1857.3		2004.8		1467.1		-122.3	
1	472.5	519.2	612.5	676.7	515.8	811.8	215.3	492.3
2	-2222.6	1686.9	-1440.2	1415.5	-1226.5	974.4	-505.0	262.7
3	-106.8	133.3	-18.1	130.9	2.1	101.1	57.6	15.9
4	-318.2	1183.2	86.8	716.2	-1.8	348.7	6.6	189.8
5	-51.5	477.4	96.8	269.1	20.5	154.1	-2.1	-61.1
6	157.0	756.4	291.0	341.5	95.7	201.2	-26.8	-72.8
7	301.3	-216.0	62.7	-183.9	29.5	-45.4	-23.3	23.8
8	-106.0	-312.3	-82.8	-76.0	52.1	0.1	15.6	28.4
9	285.3	-353.0	-27.9	-173.2	-9.3	15.2	-7.3	45.5
10	41.2	81.9	54.8	16.4	6.8	15.7	-7.6	-12.2

LOWER ROTOR EDGEWISE
 BENDING MOMENT .1R
 LOWER ROTOR
 PITCH LINK LOAD

HARMONIC	BENDING MOMENT .1R		PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-4731.6		-19.5	
1	3942.9	1621.9	-163.2	244.3
2	1464.9	-3146.2	-44.1	111.1
3	227.7	-23.7	2.7	-13.9
4	84.2	-19.9	-9.5	40.9
5	-68.1	43.3	29.9	53.8
6	-78.1	-149.7	35.3	42.6
7	100.2	-614.7	-35.4	-12.2
8	-74.8	101.0	-35.8	1.3
9	50.7	139.3	-104.7	-2.4
10	2.2	10.2	-65.7	29.2

RUN 23
 VKTS =
 V/OR =

POINT 14
 107.0
 0.299

OMEGA = 604.1
 RHU100 = 0.2198

ALFS,C = 8.4
 CP/S = 0.004506

CLK/S,R = 0.11709
 CDR/S,R = 0.01566

CMY/S,R = 0.2056
 CMX/S,R = -0.0071

PSI	UPPER ROTOR .1R	BLADE NORMAL .2R	BENDING .3R	MOMENT .6R	UR EDGEMISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	236.	2806.	810.	-1940.	0.	-608.	3214.
11.25	-1320.	1632.	83.	-1130.	0.	-643.	3758.
22.50	-1480.	998.	-299.	-1403.	0.	-483.	4222.
33.75	-492.	1489.	44.	-2088.	0.	-265.	4413.
45.00	472.	2239.	516.	-1925.	0.	-270.	4667.
56.25	1341.	2659.	763.	-1629.	0.	-228.	4934.
67.50	2684.	3241.	981.	-1735.	0.	-87.	5222.
78.75	3481.	3867.	1181.	-1304.	0.	-239.	6082.
90.00	2977.	3942.	1437.	-404.	0.	-477.	7512.
101.25	3342.	4100.	1751.	-379.	0.	-359.	8716.
112.50	4875.	4671.	1615.	-887.	0.	-155.	9333.
123.75	3823.	4237.	1073.	-451.	0.	-154.	9682.
135.00	926.	2816.	906.	-131.	0.	-169.	9782.
146.25	1702.	2763.	1063.	-2041.	0.	-130.	8997.
157.50	4685.	4062.	937.	-4549.	0.	-61.	7220.
168.75	3742.	4012.	682.	-4562.	0.	92.	6029.
180.00	472.	2486.	459.	-3100.	0.	107.	6817.
191.25	-538.	1606.	-6.	-2558.	0.	-153.	8099.
202.50	-934.	1379.	-377.	-1986.	0.	-413.	7685.
213.75	-1900.	1008.	-159.	-543.	0.	-582.	6397.
225.00	-655.	1448.	360.	26.	0.	-778.	5938.
236.25	1733.	2858.	888.	-128.	0.	-884.	5591.
247.50	2035.	3666.	1441.	1090.	0.	-878.	4594.
258.75	1795.	3716.	1841.	2979.	0.	-885.	4303.
270.00	2714.	4117.	2101.	3896.	0.	-800.	5376.
281.25	2790.	4539.	2378.	4769.	0.	-707.	6398.
292.50	1711.	4175.	2343.	5911.	0.	-882.	6292.
303.75	1414.	3625.	1928.	5603.	0.	-1023.	5365.
315.00	1770.	3562.	1692.	3791.	0.	-786.	4326.
326.25	1906.	3643.	1685.	1780.	0.	-565.	3671.
337.50	2060.	3605.	1531.	-328.	0.	-605.	3360.
348.75	1730.	3460.	1260.	-1992.	0.	-619.	3128.

CMY/S,R = 0.2056
CMX/S,R = -0.0071

CLR/S,R = 0.11709
CDR/S,R = 0.01566

ALFS,C = 8.4
CP/S = 0.004506

POINT 14
OMEGAR = 604.1
RHU100 = 0.2198

RUN 23
VKTS =
V/OR =

PSI	LOWER ROTOR BLADE NORMAL			BENDING MOMENT		LR EDGEWISE		LR PITCH	
	.1R	.2R	.3R	.6R	BENDING .1R		LINK LOAD		
300.00	3556.	2699.	1379.	-786.	-2055.		-80.		
288.75	2431.	2543.	1501.	-430.	-3806.		-319.		
277.50	2154.	2140.	1552.	-116.	-6798.		-454.		
266.25	3093.	2457.	1824.	-11.	-9135.		-232.		
255.00	3815.	2997.	2056.	21.	-9784.		-152.		
243.75	3619.	3009.	1952.	9.	-10311.		-106.		
232.50	2762.	2534.	1622.	-127.	-11670.		106.		
221.25	2034.	1955.	1239.	-363.	-12314.		132.		
210.00	2221.	1656.	874.	-665.	-11127.		11.		
198.75	2208.	1647.	573.	-961.	-9328.		87.		
187.50	342.	1092.	200.	-1013.	-8188.		178.		
176.25	-2181.	-311.	-360.	-795.	-7229.		92.		
165.00	-2461.	-1197.	-733.	-617.	-5671.		20.		
153.75	-1268.	-715.	-446.	-530.	-3933.		58.		
142.50	-509.	192.	370.	-317.	-3013.		161.		
131.25	817.	1037.	1206.	-55.	-3228.		240.		
120.00	2889.	2223.	1859.	124.	-3783.		194.		
108.75	3574.	3229.	2495.	400.	-3691.		178.		
97.50	3495.	3617.	3192.	766.	-3339.		300.		
86.25	4694.	4165.	3688.	937.	-4073.		314.		
75.00	5382.	4777.	3749.	971.	-5630.		254.		
63.75	3945.	4420.	3560.	1059.	-5981.		309.		
52.50	3198.	3706.	3382.	968.	-4553.		167.		
41.25	4464.	3860.	3170.	521.	-3053.		-125.		
30.00	4792.	4178.	2864.	37.	-2399.		25.		
18.75	3140.	3592.	2464.	-223.	-1630.		251.		
7.50	1409.	2475.	1721.	-353.	-149.		-121.		
356.25	-373.	1168.	528.	-401.	1396.		-457.		
345.00	-2748.	-437.	-520.	-323.	2196.		-294.		
333.75	-3367.	-1417.	-724.	-298.	1749.		-361.		
322.50	-579.	-575.	-92.	-527.	258.		-627.		
311.25	2826.	1438.	802.	-818.	-1137.		-372.		

PUN 23 PCINT 15 QMEG*R = 607.3 ALFS,C = 3.1 CLR/S,R = 0.08479 CMY/S,R = 0.0939
 VKTS = 107.8 RHU100 = 0.2194 CP/S = 0.002807 CDR/S,R = 0.00627 CMX/S,R = -0.0060
 V/OR = 0.299

HARMONIC	UPPER ROTOR BLADE NORMAL BENDING MOMENT		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR EDGEWISE BENDING MOMENT		UPPER ROTOR SHAFT STRESS	
	.1R	.2R	.3R	.6R	.1R	.2R	.3R	.6R
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2332.8		491.3		-761.7		-1463.2	
1	-702.0	-140.2	-238.7	-506.7	-27.5	-587.7	741.3	-2374.4
2	-561.9	-765.7	-384.8	-497.1	-348.7	-275.9	-1091.6	-282.4
3	-37.6	66.7	-62.1	123.5	-27.5	63.6	26.5	81.1
4	272.6	-29.4	194.7	42.0	100.3	10.3	-292.9	-61.4
5	-526.5	304.7	-326.9	91.4	-105.3	30.4	371.4	-302.1
6	-138.5	-404.6	1.3	-291.3	-15.2	-124.7	186.8	254.5
7	207.9	153.6	90.4	77.6	35.2	-27.6	-99.5	-48.7
8	-59.9	83.8	-22.2	23.1	11.5	1.4	17.3	-27.5
9	242.8	-88.3	112.7	13.1	-1.7	-9.8	-119.8	44.3
10	-94.1	-1.3	-29.6	-18.1	-1.2	7.4	62.8	18.6

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HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	.1R	.2R	.3R	.6R	.1R	.2R
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-592.3		5546.7	
1	0.0	0.0	9.5	235.1	-3597.3	-841.2
2	0.0	0.0	-31.8	44.9	-417.9	-525.7
3	0.0	0.0	-44.1	47.6	298.3	-1.3
4	0.0	0.0	-48.4	-20.1	-188.9	409.2
5	0.0	0.0	49.6	-24.1	107.2	-255.9
6	0.0	0.0	49.8	68.8	-94.0	-57.4
7	0.0	0.0	29.3	66.0	-106.7	-270.9
8	0.0	0.0	46.1	20.9	33.0	-57.3
9	0.0	0.0	6.9	-26.7	17.7	25.7
10	0.0	0.0	-11.6	-10.7	-30.2	-10.4

RUN 23 POINT 15 OMEG*R = 607.3 ALFS,C = 3.1 CLR/S,R = 0.08479 CMY/S,R = 0.0939
 VKTS = 107.8 RHO100 = 0.2194 CP/S = 0.002807 CDR/S,R = 0.00627 CMX/S,R = -0.0060
 V/OR = 0.299

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1933.8		-661.4		-309.7		-316.3	
1	-571.6	-355.9	-231.9	55.6	-43.2	343.8	130.1	384.6
2	-747.5	220.3	-565.0	190.7	-492.4	68.1	-233.6	6.0
3	-72.5	-453.9	-67.0	-255.5	3.1	-126.2	49.1	18.4
4	239.5	69.8	195.2	-19.0	101.4	9.6	-51.6	-18.5
5	-427.4	-203.1	-271.8	-14.5	-127.7	-26.4	49.2	22.1
6	-97.6	430.4	95.5	246.3	9.9	126.6	7.6	-54.8
7	385.2	97.3	184.5	-90.0	38.1	-33.4	-35.9	-13.4
8	1.6	-88.8	-19.8	-34.9	13.6	9.1	0.7	5.2
9	-3.1	22.6	-1.1	-1.9	-4.5	-3.6	8.5	3.5
10	-11.0	106.5	24.3	44.3	-12.3	1.3	-0.6	-6.4

LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

0	-4365.5
1	1732.3
2	497.0
3	44.7
4	-60.4
5	65.0
6	-59.8
7	355.8
8	-25.9
9	-35.8
10	-11.1

LOWER ROTOR PITCH LINK LOAD

COS	-153.8
SIN	73.5
COS	-162.1
SIN	12.5
COS	26.1
SIN	-37.1
COS	-3.9
SIN	-0.9
COS	-4.2
SIN	3.6
COS	5.8
SIN	8.0
COS	38.4
SIN	1.1
COS	21.3
SIN	15.6
COS	2.9
SIN	-15.2
COS	0.5
SIN	-11.2
COS	11.9

HUN	23	PCINT	15	UMEG* κ	607.3	ALFS+C =	3.1	CLR/S κ R	0.08479	CMY/S κ R	0.0939
VKTS =		107.8		RHOLCO =	0.2194	CP/S =	0.002807	CDP/S κ R	0.00627	CMX/S κ R	-0.0060
V/C ϕ =		0.299									
UPPER ROTOR BLADE NORMAL BENDING MOMENT											
PSI											
		.1K	.2K	.3K	.6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS			
0.00		-3731.	-174.	-1142.	-1661.	0.	-537.	1508.			
11.25		-3974.	-475.	-1415.	-2272.	0.	-459.	1108.			
22.50		-3858.	-519.	-1458.	-2916.	0.	-533.	1469.			
33.75		-3405.	-228.	-1319.	-3229.	0.	-548.	2066.			
45.00		-3246.	-81.	-1276.	-2926.	0.	-353.	2191.			
56.25		-3651.	-408.	-1433.	-2263.	0.	-108.	2016.			
67.50		-3779.	-726.	-1528.	-2012.	0.	-111.	2435.			
78.75		-2892.	-385.	-1305.	-2638.	0.	-341.	3753.			
90.00		-1471.	474.	-888.	-3561.	0.	-530.	5134.			
101.25		-391.	1197.	-632.	-3906.	0.	-560.	6058.			
112.50		-399.	1275.	-739.	-3442.	0.	-479.	7102.			
123.75		-1786.	594.	-1045.	-2514.	0.	-370.	8376.			
135.00		-2963.	-133.	-1184.	-2065.	0.	-340.	8936.			
146.25		-2011.	148.	-1041.	-2937.	0.	-427.	8463.			
157.50		-391.	1100.	-848.	-4238.	0.	-548.	7797.			
168.75		-726.	1315.	-803.	-4338.	0.	-624.	7661.			
180.00		-2100.	675.	-888.	-3501.	0.	-639.	8130.			
191.25		-2590.	199.	-1032.	-2844.	0.	-650.	8834.			
202.50		-2867.	36.	-1115.	-2130.	0.	-707.	9152.			
213.75		-3309.	-85.	-995.	-1110.	0.	-738.	8866.			
225.00		-2811.	182.	-713.	-417.	0.	-712.	8388.			
236.25		-1949.	772.	-423.	116.	0.	-762.	7933.			
247.50		-1897.	1083.	-146.	1005.	0.	-851.	7379.			
258.75		-1182.	1272.	133.	1650.	0.	-772.	6903.			
270.00		-1357.	1680.	318.	1768.	0.	-672.	6732.			
281.25		-2089.	1806.	350.	2057.	0.	-809.	6582.			
292.50		-2024.	1429.	261.	2321.	0.	-914.	5969.			
303.75		-1644.	1159.	52.	1766.	0.	-717.	4799.			
315.00		-2077.	1129.	-229.	795.	0.	-586.	3559.			
326.25		-2911.	877.	-457.	123.	0.	-796.	2922.			
337.50		-3418.	428.	-612.	-431.	0.	-963.	2807.			
348.75			102.	-823.	-1072.	0.	-796.	2408.			

RUN: 23
 VKTS =
 V/CR =
 PUINT 15
 107.8
 0.299
 OMEG* R = 607.3
 RHUI00 = 0.2194
 ALFS,C = 3.1
 CP/S = 0.002807
 CLR/S, R = 0.08479
 CDR/S, R = 0.00627
 CMV/S, R = 0.0939
 CMX/S, R = -0.0060

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEMISE BENDING		LR PITCH LINK LGAD	
	.1R	.2R	.3R	.6R	.1R		
300.00	-1917.	-570.	-519.	-486.	-2456.	-294.	
288.75	-2634.	-1026.	-610.	-373.	-3446.	-326.	
277.50	-1908.	-988.	-414.	-428.	-4624.	-332.	
266.25	-73.	-69.	-65.	-599.	-4947.	-318.	
255.00	383.	612.	63.	-630.	-4798.	-229.	
243.75	-1024.	151.	-151.	-492.	-5167.	-119.	
232.50	-2118.	-736.	-535.	-428.	-5938.	-74.	
221.25	-1768.	-1034.	-774.	-551.	-6129.	-58.	
210.00	-837.	-661.	-664.	-751.	-5607.	-19.	
198.75	-455.	-164.	-407.	-893.	-5356.	37.	
187.50	-1112.	-180.	-397.	-887.	-5843.	73.	
176.25	-2191.	-768.	-651.	-732.	-6238.	41.	
165.00	-2718.	-261.	-840.	-531.	-5739.	-16.	
153.75	-2859.	-1335.	-758.	-345.	-4863.	-9.	
142.50	-2983.	-1269.	-462.	-155.	-4761.	3.	
131.25	-2523.	-1013.	-115.	5.	-5529.	-45.	
120.00	-1551.	-422.	194.	91.	-5960.	-43.	
108.75	-1013.	106.	495.	150.	-5357.	3.	
97.50	-968.	315.	735.	225.	-4704.	-60.	
86.25	-1080.	331.	745.	275.	-5013.	-153.	
75.00	-1517.	121.	527.	261.	-5536.	-118.	
63.75	-1999.	-265.	263.	204.	-5042.	-84.	
52.50	-2244.	-562.	5.	132.	-3850.	-171.	
41.25	-2758.	-873.	-269.	40.	-3198.	-269.	
30.00	-3363.	-1288.	-478.	-99.	-3353.	-314.	
18.75	-3299.	-1437.	-604.	-265.	-3412.	-316.	
7.50	-3082.	-1316.	-735.	-371.	-2639.	-252.	
356.25	-3355.	-1365.	-857.	-397.	-1541.	-221.	
345.00	-3342.	-1502.	-878.	-425.	-1325.	-317.	
333.75	-2554.	-1327.	-764.	-500.	-2130.	-375.	
322.50	-1664.	-877.	-559.	-579.	-2716.	-297.	
311.25	-1356.	-498.	-433.	-586.	-2481.	-249.	

FUN 23 PLINT 16
 VKTS = 142.6 CMGR = 607.3 ALFS.C = 2.8 CLR/S,R = 0.07811 CMY/S,R = 0.0933
 V/DR = 0.596 RHUJJO = 0.2176 CP/S = 0.002998 CDR/S,R = 0.00711 CMX/S,R = -0.0060

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-3080.6	778.9	-109.3	81.0	-1168.4	-277.9	-1860.7	2635.0
1	621.9	-1188.5	716.3	-855.6	692.7	-473.1	1833.9	-495.5
2	-2130.1	182.1	-1442.8	36.3	-1100.1	50.4	-2262.9	90.9
3	-318.7	-863.4	-170.9	-502.1	-71.5	-242.4	514.3	718.5
4	-177.2	586.0	86.9	267.1	55.6	130.2	254.4	-440.3
5	-358.8	-476.7	-277.5	-300.1	-104.8	-165.6	264.9	268.9
6	-89.4	39.4	50.3	67.0	-8.1	5.3	-186.7	-32.4
7	329.6	182.8	152.2	63.3	24.4	-13.6	5.0	147.0
8	2.2	6.7	-29.2	-21.1	12.7	-4.6	61.3	-38.6
9	-105.2	31.5	-29.8	8.1	17.4	3.9	66.5	-92.2
10	-88.9		-45.0		-3.4			

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

UPPER ROTOR PITCH LINK LOAD

UPPER ROTOR SHAFT STRESS

HARMONIC

HARMONIC	BENDING MOMENT .1R		PITCH LINK LOAD		SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-605.3	198.8	5620.0	-187.5
1	0.0	0.0	71.6	116.2	-3066.4	-914.4
2	0.0	0.0	-26.3	-8.9	-533.8	-245.5
3	0.0	0.0	7.3	53.4	263.5	896.9
4	0.0	0.0	-3.8	-37.0	-183.1	-306.3
5	0.0	0.0	60.4	36.0	150.8	17.2
6	0.0	0.0	15.6	84.6	-36.3	-186.2
7	0.0	0.0	18.4	6.7	-68.5	-99.4
8	0.0	0.0	40.5	-5.9	184.7	-27.4
9	0.0	0.0	26.8	-39.8	52.6	-4.0
10	0.0	0.0	-12.9		-68.3	

RUN 23 PUNT 16 CMY/S,R = 0.0933
VKTS = 142.6 UMEGR = 607.3 CLR/S,R = 0.07811
V/CR = 0.396 RHU100 = 0.2176 CP/S = 0.002998 CDR/S,R = 0.00711
CMX/S,R = -0.0060

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-2670.3	-744.2	-1170.6	-81.8	-673.9	355.1	-386.8	501.7
1	-721.9	123.8	-291.4	278.2	30.1	-9.2	226.8	-84.7
2	-2566.9	-452.7	-1937.2	-237.4	-1497.9	-120.7	-502.1	49.1
3	-155.6	587.6	-159.2	368.7	-46.2	144.3	79.6	-106.0
4	-372.5	-315.7	-17.8	-36.9	28.1	-28.9	35.6	25.7
5	-479.8	486.6	-306.7	343.1	-125.2	154.9	59.6	-45.0
6	-318.7	136.4	-7.4	-72.7	-18.4	-43.9	17.5	-0.1
7	280.1	-144.6	173.3	-27.9	69.8	11.2	3.7	13.8
8	-47.5	-229.0	-32.9	33.3	26.4	-2.9	33.7	15.6
9	-352.5	100.5	-154.0	60.2	17.4	-4.3	6.5	-6.4
10	-117.4		-1.7		-11.3			

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LOWER ROTOR EDGEWISE
BENDING MOMENT .1R

HARMONIC

HARMONIC	COS	SIN
0	-4201.7	-318.1
1	1030.7	-735.6
2	1728.1	295.1
3	231.9	25.0
4	-54.9	30.3
5	36.1	-77.7
6	19.5	-442.9
7	646.0	-59.7
8	-53.3	-54.9
9	44.8	-4.6
10	-15.1	

LOWER ROTOR
PITCH LINK LOAD

PITCH LINK LOAD	COS	SIN
-180.7	-0.3	
-194.3	29.2	
79.7	23.3	
24.2	17.5	
-24.5	9.7	
-14.3	9.5	
27.0	-1.5	
1.3	-4.3	
-9.1	16.2	
-14.2	13.0	
-11.8		

RUN 23
 VKTS =
 V/CP =

PULIT 16
 142.0
 0.390

0.4EG*K = 607.3
 RHD100 = 0.2176

ALFS,C = 2.8
 CP/S = 0.002998

CLR/S,R = 0.07611
 CDR/S,T = 0.00711

CMY/S,R = 0.0933
 CMX/S,R = -0.0060

PSI	UPPER MOTOR BLADE NORMAL BENDING MOMENT				UP EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER MOTOR SHAFT STRESS
	.1R	.2R	.3R	.6R			
0.00	-5375.	-1099.	-1653.	-1208.	0.	-408.	2315.
11.25	-5459.	-1488.	-2017.	-1997.	0.	-346.	1841.
22.50	-5137.	-1495.	-1969.	-2385.	0.	-405.	1980.
33.75	-4095.	-1014.	-1549.	-2909.	0.	-469.	2491.
45.00	-2261.	-31.	-1131.	-3802.	0.	-389.	2603.
56.25	-1209.	710.	-917.	-3743.	0.	-205.	2345.
67.50	-1454.	792.	-722.	-2736.	0.	-199.	2830.
78.75	-1167.	957.	-418.	-2346.	0.	-365.	4490.
90.00	182.	1610.	-196.	-2679.	0.	-465.	6170.
101.25	563.	1917.	-289.	-2643.	0.	-491.	7236.
112.50	-1011.	1176.	-734.	-2147.	0.	-482.	8430.
123.75	-2840.	-95.	-1363.	-2102.	0.	-440.	9578.
135.00	-3056.	-756.	-1812.	-3403.	0.	-540.	9419.
146.25	-2032.	-419.	-1860.	-5773.	0.	-751.	8086.
157.50	-1775.	-23.	-1804.	-7443.	0.	-791.	6999.
168.75	-3332.	-594.	-2112.	-7317.	0.	-137.	6904.
180.00	-5713.	-1879.	-2770.	-6183.	0.	-777.	7651.
191.25	-7492.	-2978.	-3309.	-4849.	0.	-722.	8572.
202.50	-7944.	-3364.	-3326.	-3538.	0.	-549.	8815.
213.75	-6850.	-2803.	-2766.	-2711.	0.	-534.	8308.
225.00	-4902.	-1515.	-1899.	-2132.	0.	-652.	7502.
236.25	-3377.	-292.	-1100.	-901.	0.	-768.	6455.
247.50	-2596.	454.	-525.	816.	0.	-887.	5590.
258.75	-2170.	929.	-95.	2364.	0.	-835.	5708.
270.00	-2116.	1162.	219.	3665.	0.	-625.	6349.
281.25	-2146.	1191.	358.	4210.	0.	-687.	6452.
292.50	-1693.	1353.	336.	3482.	0.	-933.	6105.
303.75	-1209.	1555.	215.	2179.	0.	-852.	5555.
315.00	-1386.	1400.	-4.	895.	0.	-663.	4428.
326.25	-2029.	992.	-322.	-365.	0.	-802.	3177.
337.50	-3052.	465.	-704.	-974.	0.	-920.	2734.
348.75	-4444.	-317.	-1151.	-868.	0.	-681.	2721.

RUN 23
 VKTS =
 V/OR =
 PLINT 16
 142.6
 0.396
 OMEG*R = 607.3
 RHJ100 = 0.2176
 ALFS,C = 2.8
 CP/S = 0.002998
 CLR/S,R = 0.07811
 CDR/S,R = 0.00711
 CMY/S,R = 0.0933
 CMX/S,R = -0.0060

PSI	LGWR ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING		LR PITCH LINK LOAD
	.1R	.2K	.3R	.6R	.1R	
300.00	-523.	174.	-124.	-574.	-2773.	-270.
288.75	-1687.	-155.	-17.	-309.	-4499.	-324.
277.50	-720.	-148.	245.	-253.	-5814.	-372.
266.25	1446.	875.	468.	-424.	-5771.	-264.
255.00	847.	1229.	352.	-498.	-5307.	-130.
243.75	-1411.	115.	-162.	-497.	-5652.	-67.
232.50	-1972.	-983.	-877.	-688.	-6500.	-24.
221.25	-1476.	-1207.	-1385.	-1028.	-6418.	6.
210.00	-1555.	-1145.	-1468.	-1310.	-5179.	20.
198.75	-2066.	-1242.	-1476.	-1451.	-4406.	50.
187.50	-3340.	-1763.	-1796.	-1381.	-4904.	76.
176.25	-5283.	-2798.	-2207.	-1077.	-5175.	75.
165.00	-6029.	-3509.	-2243.	-715.	-4135.	49.
153.75	-4394.	-3114.	-1787.	-447.	-3179.	-4.
142.50	-3523.	-2094.	-1033.	-219.	-3820.	-33.
131.25	-2454.	-1142.	-241.	24.	-5267.	-18.
120.00	-1123.	-231.	433.	220.	-5903.	-62.
108.75	-201.	653.	993.	364.	-5691.	-184.
97.50	-452.	1071.	1365.	525.	-5795.	-271.
86.25	-1356.	796.	1331.	655.	-6600.	-323.
75.00	-1640.	232.	904.	616.	-7073.	-367.
63.75	-2059.	-201.	385.	407.	-6148.	-327.
52.50	-2901.	-698.	-86.	155.	-4262.	-260.
41.25	-3842.	-1427.	-610.	-108.	-2923.	-276.
30.00	-4104.	-2006.	-1185.	-377.	-2681.	-269.
18.75	-4967.	-2475.	-1677.	-508.	-2345.	-200.
7.50	-6980.	-3330.	-2032.	-470.	-988.	-239.
356.25	-7411.	-4064.	-2259.	-469.	196.	-346.
345.00	-5843.	-3785.	-2244.	-567.	-414.	-352.
333.75	-4226.	-2830.	-1788.	-621.	-2042.	-344.
322.50	-2666.	-1746.	-994.	-651.	-2638.	-389.
311.25	-737.	-514.	-350.	-697.	-2206.	-345.

RUN 23 POINT 17 $\Omega_{LEG} \cdot R = 604.7$ $ALFS \cdot C = 2.9$ $CLR/S, K = 0.10987$ $CMY/S, K = 0.1176$
 $VKTS = 143.0$ $RHOL00 = 0.2157$ $CP/S = 0.004461$ $CDR/S, R = 0.00754$ $CMX/S, K = -0.0070$
 $V/OR = 0.099$

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	•LR		•2R		•3R		•6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-6.7	5750.5	2047.4	3465.1	359.0	2029.7	-784.7	-635.2
1	-298.4	-1295.1	-142.8	-934.2	147.9	-521.0	1277.4	-314.9
2	-1862.6	211.7	-1308.8	64.8	-1002.0	80.8	-2110.5	57.8
3	-368.4	-1172.0	-229.8	-698.4	-119.8	-294.4	277.6	1084.8
4	-367.5	619.7	29.9	280.3	9.9	105.1	380.2	-470.6
5	-279.4	-563.7	-247.3	-365.0	-95.4	-201.5	221.2	323.0
6	-148.1	-49.5	24.9	18.0	-26.9	-16.6	144.5	21.5
7	304.0	62.6	162.6	42.6	19.0	3.0	-158.2	-55.6
8	29.4	51.0	-7.5	-27.8	-8.0	5.7	-16.1	-89.1
9	-256.3	-44.9	-36.0	-20.4	26.7	15.9	144.6	-57.8
10	-66.9		-24.9		-13.6		64.6	

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HARMONIC	UPPER ROTOR BENDING MOMENT •LR		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-599.9	236.0	6135.4	1375.9
1	0.0	0.0	105.3	156.9	-3678.8	-737.1
2	0.0	0.0	-15.5	-32.3	-549.0	-128.9
3	0.0	0.0	0.4	55.6	448.4	861.2
4	0.0	0.0	-12.4	-61.5	35.5	-288.4
5	0.0	0.0	10.9	30.9	59.2	27.2
6	0.0	0.0	3.7	-0.5	-19.6	-177.2
7	0.0	0.0	-29.1	17.8	-115.2	-66.9
8	0.0	0.0	43.3	22.0	46.7	-9.3
9	0.0	0.0	42.3	-5.3	26.5	22.0
10	0.0	0.0	-8.3		-71.4	

PUN 23 PCINT 17 CMY/S,R = 0.1176
 VKTS = 143.0 OMEG*R = 604.7 ALFS,C = 2.9 CLR/S,R = 0.10987
 V/CR = 0.399 RHQ100 = 0.2157 CP/S = 0.004461 CDR/S,R = 0.00754
 CMX/S,R = -0.0070

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	680.1		1242.6		989.1		-165.7	
1	-224.3	-4740.3	-197.8	-2886.6	122.5	-1567.5	226.6	210.2
2	-2754.3	603.4	-2010.7	669.7	-1575.0	295.4	-527.1	7.4
3	-244.0	-487.0	-214.4	-249.1	-65.1	-133.8	84.5	67.7
4	-658.3	827.6	-152.5	562.7	-67.4	219.9	74.3	-144.2
5	-319.5	-90.5	-186.0	45.8	-93.2	33.1	39.3	1.6
6	-262.3	742.4	90.3	444.7	12.6	212.7	8.2	-66.7
7	349.2	225.6	226.8	-57.5	82.5	-43.7	-33.6	-7.3
8	-57.7	-178.6	-62.9	-40.8	8.3	-13.5	8.0	15.9
9	-441.4	-206.2	-178.8	61.1	21.9	-12.1	38.3	17.8
10	-106.8	88.5	11.5	50.4	1.9	-12.3	7.4	-0.6

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	LOWER ROTOR		PITCH LINK LEAD	
	COS	SIN	COS	SIN
0	-4028.2		-117.4	
1	2098.6	1185.9	-192.2	13.0
2	1201.5	-1153.6	85.4	81.2
3	355.7	215.2	16.7	64.9
4	54.8	-22.1	-47.3	23.6
5	52.1	81.8	1.8	20.1
6	-34.3	-132.0	38.8	41.6
7	588.5	-339.9	-23.8	3.0
8	-73.4	-25.5	-44.5	7.4
9	100.0	-81.7	-62.4	54.6
10	-23.0	-32.5	-34.1	10.3

C-3

ORIGINAL PAGE IS
OF POOR QUALITY

RUN 23	POINT 17	OMEG#R	ALFS,C =	2.9	CLR/S,R = 0.10987	CMY/S,R = 0.1176
VKTS =	143.0	RHO100	CP/S =	0.004461	CDR/S,R = 0.00754	CMX/S,R = -0.0070
V/OR =	0.399					
PSI	LOWER ROTOR BLA	BENDING MOMENT	LR EDGEMISE	LR PITCH		
	.LR	.3R	.6R	BENDING .LR	LINK LOAD	
300.00	7057.	3277.	-265.	-3136.	-164.	
288.75	5529.	3420.	136.	-4854.	-229.	
277.50	6161.	3651.	316.	-6171.	-381.	
266.25	8516.	3948.	213.	-6672.	-244.	
255.00	8091.	3982.	141.	-6776.	-15.	
243.75	5577.	3482.	96.	-7251.	55.	
232.50	4746.	2601.	-164.	-8180.	52.	
221.25	5049.	1863.	-594.	-8332.	81.	
210.00	4221.	1440.	-957.	-7206.	113.	
198.75	2344.	899.	-1137.	-6375.	113.	
187.50	-246.	-28.	-1096.	-6631.	119.	
176.25	-3245.	-986.	-856.	-6311.	148.	
165.00	-4905.	-1478.	-582.	-4551.	104.	
153.75	-4425.	-1370.	-415.	-3143.	16.	
142.50	-3297.	-875.	-287.	-3458.	63.	
131.25	-2549.	-291.	-100.	-4344.	123.	
120.00	-1783.	231.	97.	-4281.	-48.	
108.75	-1120.	677.	265.	-3580.	-246.	
97.50	-1284.	1009.	467.	-3498.	-267.	
86.25	-1347.	1136.	640.	-4252.	-300.	
75.00	-1703.	1002.	616.	-4780.	-309.	
63.75	-1358.	676.	435.	-4186.	-127.	
52.50	-2000.	352.	262.	-2793.	-80.	
41.25	-2574.	142.	45.	-1705.	-245.	
30.00	-1837.	-64.	-256.	-1440.	-131.	
18.75	-1684.	-315.	-403.	-1129.	104.	
7.50	-3304.	-499.	-310.	99.	-121.	
356.25	-3986.	-573.	-228.	1153.	-449.	
345.00	-2232.	-417.	-260.	414.	-363.	
333.75	264.	332.	-295.	-1300.	-286.	
322.50	3198.	1641.	-372.	-2862.	-451.	
311.25	6390.	2787.	-453.	-2169.	-390.	

HARMONIC
 0
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10

PWR = 143.2
 PWR = 0.399

CMR/R = 605.4
 CMR/R = 0.2149

ALFS/C = 2.9
 CP/S = 0.003489

CLR/S,R = 0.09291
 CDR/S,R = 0.00717

CMY/S,R = 0.1057
 CMX/S,R = -0.00559

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1570.9	3354.7	574.9	1821.0	-383.3	907.4	-1339.5	-1047.3
1	107.4	-1045.6	297.3	-756.9	415.6	-396.3	1479.2	-206.3
2	-2021.6	256.8	-1391.6	76.4	-1059.6	69.4	-2168.1	24.4
3	-352.6	-972.8	-176.8	-611.5	-78.0	-273.7	392.2	857.5
4	-451.9	643.9	-36.2	320.1	-6.2	133.5	468.1	-493.8
5	-212.1	-488.9	-202.5	-326.4	-70.9	-172.8	152.3	261.0
6	-218.9	-75.0	-29.5	20.1	-57.8	-13.8	207.6	24.5
7	342.7	146.9	174.0	60.5	24.6	-5.5	-175.0	-90.8
8	37.0	137.6	-10.4	18.7	7.5	-14.8	-12.5	-114.4
9	-155.0	28.7	-51.2	9.5	21.4	12.7	45.9	-67.4
10	-28.4		-18.6		-9.9		46.8	

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

UPPER ROTOR PITCH LINK LOAD
 COS SIN

UPPER ROTOR SHAFT STRESS
 COS SIN

HARMONIC
 0
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-631.9	213.3	6031.5	1816.4		
1	0.0	0.0	95.2	135.1	-3134.7	-856.6		
2	0.0	0.0	-13.0	-26.1	-532.5	-86.4		
3	0.0	0.0	-2.4	59.0	327.4	846.0		
4	0.0	0.0	-2.3	-52.4	73.6	-310.9		
5	0.0	0.0	15.9	34.4	70.8	70.6		
6	0.0	0.0	19.6	43.9	-8.6	-107.1		
7	0.0	0.0	31.2	6.1	-131.0	-118.0		
8	0.0	0.0	41.2	-2.4	120.3	51.6		
9	0.0	0.0	29.4	-12.3	20.3	9.2		
10	0.0	0.0	-23.9		-78.5			

RUN 23 PCINT 18
 VKTS = 143.2 OMEG*P = 605.4 ALFS,C = 2.9 CLR/S,R = 0.09291 CMY/S,R = 0.1037
 V/CP = 0.399 WHOLCG = 0.2149 CP/S = 0.003489 CDR/S,R = 0.00717 CMX/S,R = -0.0059

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1315.3	-2115.3	-167.4	-1050.0	32.1	-298.6	-290.4	408.6
1	-255.6	182.3	-61.1	349.6	181.4	47.4	230.8	-63.2
2	-2740.1	-503.4	-2041.9	-257.9	-1576.3	-127.3	-523.8	70.3
3	-196.6	554.3	-186.9	403.0	-55.4	161.1	84.0	-101.0
4	-575.1	-235.5	-141.5	-4.5	-33.8	3.7	64.4	116.7
5	-411.9	563.7	-261.6	406.4	-118.2	189.3	52.3	-56.4
6	-398.7	286.4	-26.1	-2.9	-36.2	-19.7	23.9	-15.4
7	292.5	-107.3	223.4	-28.8	75.3	2.9	-31.1	8.6
8	-22.2	-314.7	-25.0	-2.1	12.6	5.9	-1.5	28.6
9	-267.4	55.1	-158.3	51.4	18.8	-5.5	29.3	-2.3
10	-101.2		-18.9		-8.5		4.5	

LOWER ROTOR EDGEWISE BENDING MOMENT .1R

LOWER ROTOR PITCH LINK LOAD

HARMONIC	BENDING MOMENT .1R		PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-4103.6	248.4	-157.9	0.2
1	2037.7	-949.4	-192.5	53.2
2	1574.0	285.9	75.8	44.7
3	298.7	-12.0	12.3	9.7
4	6.2	41.0	-41.8	8.3
5	33.4	-104.2	-13.4	21.7
6	21.4	-295.8	35.5	-4.1
7	319.2	-65.5	-5.6	-8.0
8	-56.2	-40.5	-12.3	19.1
9	80.4	15.1	-35.8	8.1
10	4.3		-15.0	

PUN: 23	PUNT 18	UMEG#R = 605.4	ALFS,C = 2.9	CLR/S,R = 0.09291	CMY/S,R = 0.1037	
VKTS =	143.2	RHUL00 = 0.2149	CP/S = 0.003489	CDR/S,R = 0.00717	CMX/S,R = -0.0059	
V/CR =	0.399					
	UPPER ROTOR	BLADE NORMAL	BENDING MOMENT	UP. EDGEWISE	UPPER ROTOR	
	.1R	.2R	.3R	BENDING .1R	SHAFT STRESS	
PSI						
0.00	-4344.	-471.	-1197.	-903.	-441.	2759.
11.25	-3902.	-517.	-1281.	-1341.	-384.	2944.
22.50	-2987.	-114.	-903.	-1515.	-440.	3491.
33.75	-1110.	879.	-182.	-1995.	-412.	3945.
45.00	1303.	2259.	447.	-2702.	-263.	4066.
56.25	2365.	3161.	783.	-2294.	-198.	4245.
67.50	2137.	3349.	1082.	-1191.	-297.	5202.
78.75	2777.	3688.	1483.	-980.	-389.	6940.
90.00	4238.	4431.	1716.	-1275.	-435.	8492.
101.25	4167.	4575.	1560.	-940.	-500.	9581.
112.50	2273.	3585.	1062.	-465.	-497.	10808.
123.75	812.	2358.	424.	-952.	-479.	11671.
135.00	1030.	1971.	5.	-2732.	-641.	11055.
146.25	1791.	2310.	-54.	-5129.	-842.	9468.
157.50	1331.	2312.	-211.	-6587.	-865.	8315.
168.75	-973.	1240.	-892.	-6172.	-825.	8077.
180.00	-4165.	-552.	-1822.	-4692.	-780.	8453.
191.25	-6493.	-2073.	-2486.	-3365.	-634.	8745.
202.50	-6894.	-2584.	-2651.	-2649.	-543.	8269.
213.75	-5637.	-2065.	-2284.	-2422.	-635.	7265.
225.00	-4523.	-1100.	-1608.	-2048.	-737.	6254.
236.25	-3583.	-285.	-1052.	-999.	-811.	5174.
247.50	-3108.	199.	-737.	449.	-898.	4433.
258.75	-3246.	369.	-465.	1978.	-839.	4689.
270.00	-3671.	305.	-225.	3334.	-716.	5198.
281.25	-3499.	324.	-139.	3674.	-825.	4985.
292.50	-2715.	608.	-165.	2751.	-976.	4461.
303.75	-2210.	858.	-226.	1476.	-853.	3901.
315.00	-2138.	873.	-323.	201.	-713.	2937.
326.25	-2239.	787.	-441.	-1049.	-813.	2165.
337.50	-2900.	527.	-603.	-1409.	-869.	2310.
348.75	-3957.	-12.	-881.	-922.	-673.	2708.

RUN 23	POINT 18	OMEGA R = 605.4	ALFS.C = 2.9	CLR/S.R = 0.09291	CMV/S.R = 0.1037
VKTS =	143.2	RHD100 = 0.2149	CP/S = 0.003489	CDR/S.R = 0.00717	CMX/S.R = -0.0059
V/OR =	0.399				

PSI	LOWER ROTOR BLADE NORMAL		BENDING MOMENT		LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
	.1R	.2R	.3R	.6R		
300.00	2125.	2239.	1273.	-394.	-2882.	-221.
288.75	942.	1729.	1357.	-69.	-4832.	-307.
277.50	2241.	1829.	1595.	-24.	-6120.	-376.
266.25	4206.	2917.	1833.	-183.	-5974.	-230.
255.00	3237.	3106.	1729.	-236.	-5654.	-65.
243.75	1027.	1870.	1148.	-275.	-6384.	-16.
232.50	537.	786.	331.	-536.	-7386.	11.
221.25	779.	504.	-244.	-911.	-7080.	40.
210.00	270.	345.	-452.	-1197.	-5685.	37.
198.75	-825.	-122.	-722.	-1339.	-5045.	50.
187.50	-2734.	-1086.	-1311.	-1270.	-5588.	100.
176.25	-4981.	-2411.	-1859.	-974.	-5481.	116.
165.00	-5644.	-3166.	-1953.	-652.	-3898.	56.
153.75	-4553.	-2776.	-1565.	-440.	-2786.	-6.
142.50	-3397.	-1856.	-882.	-230.	-3639.	16.
131.25	-2481.	-1019.	-135.	32.	-5019.	33.
120.00	-1188.	-168.	503.	233.	-5167.	-78.
108.75	-275.	676.	1028.	377.	-4674.	-224.
97.50	-610.	1056.	1412.	560.	-4954.	-292.
86.25	-1289.	844.	1462.	692.	-5962.	-336.
75.00	-1259.	513.	1141.	618.	-6425.	-336.
63.75	-1316.	301.	681.	411.	-5409.	-229.
52.50	-2300.	-170.	247.	210.	-3523.	-174.
41.25	-3068.	-883.	-181.	-32.	-2412.	-231.
30.00	-2981.	-1258.	-65.	-309.	-2394.	-200.
18.75	-3694.	-1513.	-985.	-431.	-1840.	-130.
7.50	-5458.	-2302.	-1326.	-380.	-94.	-242.
356.25	-5856.	-3012.	-1566.	-366.	974.	-379.
345.00	-4249.	-2651.	-1450.	-439.	-43.	-351.
333.75	-2104.	-1446.	-761.	-512.	-1731.	-347.
322.50	366.	105.	262.	-601.	-2203.	-411.
311.25	2443.	1664.	1024.	-626.	-2004.	-329.

RUN 24 VKTS = 140.9 PCINT 6 OMEG#R = 590.9 ALFS.C = 5.3 CLR/S,R = 0.07855 CMY/S,R = 0.1258
 V/OP = 0.403 RHU100 = 0.2204 CP/S = 0.002754 CDR/S,R = 0.01014 CMX/S,R = -0.0126

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2P		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-4555.2	-1951.5	-1293.5	-1737.2	-2095.9	-1537.1	-2473.8	-3777.3
1	2478.0	-1814.8	2126.9	-1289.6	1669.7	-804.5	2757.4	-1396.2
2	-2150.1	-61.1	-1423.9	-78.3	-1104.8	-0.1	-2315.5	403.6
3	-274.9	-1081.7	-111.6	-536.0	-41.9	-740.0	545.1	897.3
4	120.9	765.0	321.1	352.6	176.6	244.2	78.8	-574.9
5	-706.6	-836.7	-473.5	-460.5	-200.4	-266.7	597.3	538.1
6	162.1	204.2	255.3	127.3	70.9	-39.0	-15.6	-118.6
7	465.8	339.8	178.7	93.8	37.7	-3.8	-297.8	-267.7
8	-139.5	54.2	-80.7	-52.3	36.6	-19.9	74.6	-93.3
9	-282.9	67.3	-92.8	-2.1	9.5	-21.6	156.9	-100.5
10	-27.5		-26.9		12.6		111.8	

200

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

0	-4760.9	1083.2
1	837.4	2074.7
2	393.8	141.1
3	36.6	23.0
4	-183.2	-3.0
5	-0.3	-56.4
6	-27.5	-329.8
7	-34.0	-47.5
8	-106.7	48.1
9	34.8	-6.7
10	77.0	

UPPER ROTOR PITCH LINK LOAD

COS	SIN
-303.9	205.9
31.7	90.5
-0.3	-1.4
-13.8	17.2
-41.9	-22.5
104.2	59.3
27.1	80.3
8.1	51.3
19.2	-27.0
-9.3	-34.4
6.4	

UPPER ROTOR SHAFT STRESS

COS	SIN
1482.4	-4718.7
-3287.6	-799.9
-672.9	-390.6
492.4	1071.7
65.3	-614.6
379.6	48.8
10.5	-477.0
-289.0	-92.8
291.6	-32.0
92.3	-3.2
-75.5	

RUN 24 POINT 6 OMEGA R = 590.9 ALFS, C = 5.3 CLR/S, R = 0.07855 CMY/S, R = 0.1258
 VKTS = 140.9 RHO100 = 0.2204 CP/S = 0.002754 CDR/S, R = 0.01014 CMX/S, R = -0.0126
 V/OR = 0.403

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-405.8		47.3		190.9		-310.7	
1	-3139.6	-975.0	-1989.1	-65.8	-1146.8	343.0	43.1	522.8
2	-3192.4	185.7	-2380.1	393.7	-1889.8	47.7	-673.2	-105.2
3	-148.6	-327.6	-125.1	-162.7	-38.6	-77.9	43.3	38.4
4	-199.8	1167.5	185.0	658.4	91.3	286.0	-12.4	-210.7
5	-402.5	25.7	-193.9	144.0	-97.4	84.8	47.8	-14.7
6	-262.1	545.7	21.1	352.8	-13.1	160.6	15.5	-55.2
7	229.7	165.1	174.9	-55.0	80.2	-82.7	-19.7	-11.3
8	-183.9	-152.3	-100.4	0.4	0.9	1.5	21.3	14.3
9	-429.8	-276.2	-200.2	28.6	16.4	-21.1	47.6	23.6
10	-183.3	155.1	-9.2	103.7	-20.6	2.0	10.3	-11.7

201

LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	LOWER ROTOR BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-4593.4		-45.7	
1	2682.8	723.6	-212.6	79.7
2	2985.5	-939.7	59.2	69.6
3	244.9	410.8	19.3	41.5
4	-30.5	81.4	-8.3	11.0
5	93.7	25.5	1.7	44.4
6	25.9	-112.2	3.4	50.7
7	1598.3	251.0	-50.5	-6.1
8	-95.8	-53.0	-27.9	23.8
9	93.3	-4.1	-88.2	22.7
10	-21.8	30.2	4.4	54.2

RUN 24 POINT 6
 VKTS = 140.9 OMEG#R = 590.9 ALFS,C = 5.3 CLR/S,R = 0.07855 CMY/S,R = 0.1258
 V/OR = 0.403 RH0100 = 0.2204 CP/S = 0.002754 CDR/S,R = 0.01014 CMX/S,R = -0.0126

PSI	UPPER ROTOR BLADE NORMAL BENDING			UR EDGEWISE BENDING		UR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	.1R	.2R	.3R	.6R	.1A				
0.00	-4890.	-621.	-1429.	-781.	-3733.	-172.	-1511.		
11.25	-5780.	-1713.	-2408.	-2167.	-3013.	-51.	-3485.		
22.50	-6807.	-2472.	-2802.	-2848.	-1771.	-117.	-4413.		
33.75	-6955.	-2745.	-2684.	-3639.	-678.	-277.	-4498.		
45.00	-5207.	-2208.	-2628.	-5432.	-858.	-204.	-5087.		
56.25	-4014.	-1596.	-2769.	-6001.	-1855.	147.	-6066.		
67.50	-5103.	-1842.	-2836.	-4566.	-2604.	234.	-5653.		
78.75	-5730.	-2135.	-2601.	-3868.	-3239.	-83.	-3582.		
90.00	-3834.	-1344.	-2175.	-4831.	-4177.	-282.	-1921.		
101.25	-2359.	-498.	-2109.	-5229.	-5193.	-239.	-1274.		
112.50	-4365.	-1335.	-2780.	-4015.	-5994.	-235.	122.		
123.75	-7754.	-3362.	-3741.	-2753.	-6353.	-212.	2253.		
135.00	-8565.	-4503.	-4280.	-3447.	-6241.	-113.	2777.		
146.25	-6741.	-3978.	-4241.	-6235.	-6143.	-181.	1294.		
157.50	-5333.	-2976.	-3957.	-8887.	-6255.	-382.	126.		
168.75	-6038.	-2867.	-3907.	-9442.	-6098.	-455.	1069.		
180.00	-8289.	-3876.	-4379.	-8298.	-5482.	-414.	3714.		
191.25	-10648.	-5248.	-5026.	-6572.	-4711.	-359.	6167.		
202.50	-11264.	-5835.	-5107.	-4937.	-4140.	-283.	7021.		
213.75	-9296.	-4882.	-4308.	-4068.	-4081.	-240.	6885.		
225.00	-6246.	-2845.	-2963.	-3594.	-4262.	-288.	6801.		
236.25	-3827.	-917.	-1653.	-2241.	-4148.	-430.	6398.		
247.50	-2179.	353.	-753.	14.	-4274.	-606.	5693.		
258.75	-1342.	1146.	-146.	2414.	-5656.	-611.	5959.		
270.00	-1283.	1628.	452.	4629.	-6811.	-437.	7075.		
281.25	-792.	2051.	966.	5763.	-6769.	-432.	7366.		
292.50	446.	2646.	1200.	5195.	-6619.	-589.	6320.		
303.75	1024.	3015.	1187.	3950.	-7158.	-525.	4507.		
315.00	755.	2774.	927.	2560.	-7377.	-367.	2344.		
326.25	438.	2300.	444.	749.	-6635.	-476.	716.		
337.50	-721.	1758.	-24.	-344.	-5476.	-607.	310.		
348.75	-3069.	731.	-537.	-244.	-4444.	-439.	8.		

RUN 24
 VKTS = 140.9
 V/OR = 0.403
 PCINT 6
 OMEG#R = 590.9
 RHU100 = 0.2204
 ALFS,C = 5.3
 CP/S = 0.002754
 CLR/S,R = 0.07855
 CDR/S,R = 0.01014
 CMV/S,R = 0.1258
 CMX/S,R = -0.0126

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR	LR PITCH LINK LOAD
	.1R	.2R	.3R		
300.00	1963.	1090.	582.	-4003.	-168.
288.75	1220.	1300.	968.	-7223.	-210.
277.50	2191.	1425.	1363.	-8348.	-371.
266.25	4572.	2619.	1746.	-7432.	-158.
255.00	4122.	3144.	1819.	-7374.	38.
243.75	2135.	2180.	1479.	-9071.	-3.
232.50	2087.	1364.	852.	-9934.	99.
221.25	2798.	1351.	337.	-8008.	201.
210.00	2719.	1441.	269.	-5320.	61.
198.75	2355.	1391.	300.	-5078.	89.
187.50	999.	864.	-84.	-6501.	313.
176.25	-1278.	-326.	-591.	-5859.	259.
165.00	-2118.	-1098.	-604.	-2981.	88.
153.75	-1194.	-718.	-119.	-2039.	173.
142.50	-176.	91.	547.	-4397.	266.
131.25	988.	901.	1277.	-6553.	144.
120.00	2671.	1989.	2006.	-6057.	7.
108.75	3581.	3007.	2607.	-5111.	-39.
97.50	2845.	3219.	2891.	-6204.	-44.
86.25	1269.	2512.	2607.	-8197.	-35.
75.00	-53.	1404.	1764.	-8140.	-40.
63.75	-1230.	344.	765.	-5374.	-56.
52.50	-2488.	-752.	-45.	-2577.	-118.
41.25	-4005.	-1803.	-691.	-2066.	-194.
30.00	-3637.	-2220.	-1291.	-2276.	-55.
18.75	-4143.	-2425.	-1912.	-453.	156.
7.50	-6911.	-3560.	-2511.	2362.	61.
356.25	-8500.	-4931.	-2941.	2686.	-436.
345.00	-7122.	-4973.	-3030.	153.	-350.
333.75	-5305.	-4004.	-2565.	-1977.	-186.
322.50	-3185.	-2670.	-1472.	-1898.	-397.
311.25	243.	-642.	-216.	-1771.	-435.

RIJN 24 PCINT 7 UMEG*R = 603.8
 VKTS = 140.9 RHJ100 = 0.2188
 V/CM = 3.394
 ALFS,C = 5.5
 CLR/S,R = 0.11311
 CDR/S,R = 0.01295
 CMY/S,R = 0.1694
 CMX/S,R = -0.0128

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	313.3	4589.4	2175.5	2542.4	250.7	1378.4	-896.2	-1332.8
1	-3000.7	-696.0	-1969.5	-502.3	-1115.9	-196.6	109.2	398.1
2	-1891.4	248.1	-1358.2	109.5	-1029.7	90.7	-2290.6	33.3
3	-116.2	-1146.8	-88.8	-640.0	-45.7	-286.8	30.8	1022.2
4	-64.2	683.3	171.9	342.6	74.3	128.7	40.4	519.8
5	-239.6	-615.3	-251.8	-409.8	-120.3	-222.1	213.7	338.7
6	-186.5	-133.7	1.5	-20.9	-45.8	-24.6	172.2	79.6
7	349.5	236.2	198.0	88.7	19.6	-21.8	-12.6	-162.8
8	32.4	245.0	-34.4	-1.0	1.9	-7.8	183.6	-227.1
9	-346.1	-44.0	-153.1	-16.0	32.8	23.7	94.6	776.8
10	-63.4		-16.8		-0.2			

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	COS		SIN	
	COS	SIN	COS	SIN
0	0.0	0.0	2183.8	-2161.5
1	0.0	0.0	-4605.6	-781.1
2	0.0	0.0	-762.1	-322.5
3	0.0	0.0	422.1	1201.1
4	0.0	0.0	-182.7	-234.2
5	0.0	0.0	-26.0	51.6
6	0.0	0.0	11.9	-229.2
7	0.0	0.0	-237.1	-188.3
8	0.0	0.0	140.8	-27.9
9	0.0	0.0	87.2	33.8
10	0.0	0.0	-79.2	

UPPER ROTOR SHAFT STRESS

COS		SIN	
COS	SIN	COS	SIN
2183.8	-2161.5	2183.8	-2161.5
-4605.6	-781.1	-4605.6	-781.1
-762.1	-322.5	-762.1	-322.5
422.1	1201.1	422.1	1201.1
-182.7	-234.2	-182.7	-234.2
-26.0	51.6	-26.0	51.6
11.9	-229.2	11.9	-229.2
-237.1	-188.3	-237.1	-188.3
140.8	-27.9	140.8	-27.9
87.2	33.8	87.2	33.8
-79.2		-79.2	

RUN 24 POINT 7 OMEG#R = 603.8 ALFS.C = 5.5 CLR/S,R = 0.11311 CMY/S,R = 0.1694
 VKTS = 140.9 RHJ100 = 0.2188 CP/S = 0.003186 CDR/S,R = 0.01295 CMX/S,R = -0.0128
 V/CR = 0.394

LOWER ROTOR BLADE NORMAL BENDING MUMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1587.1	-5947.8	1464.1	-3847.4	1175.3	-2165.6	-190.4	146.4
1	1787.5	1311.3	1158.4	1161.9	1073.7	680.8	370.5	131.9
2	-2677.2	-261.7	-1839.8	-129.8	-1434.2	-55.7	-461.4	41.2
3	-129.0	890.6	-81.8	609.6	10.5	286.2	92.2	-147.4
4	550.2	-502.9	-49.5	-189.2	-6.9	-75.0	56.3	57.1
5	-244.8	631.7	-250.1	419.2	-101.3	190.3	33.7	-63.8
6	-362.0	264.4	8.3	-21.2	-28.3	-32.3	19.0	-11.6
7	297.6	-172.5	204.2	-45.1	63.0	-11.0	-34.3	14.5
8	-47.4	-281.1	-58.3	13.2	6.2	-2.1	5.8	26.0
9	-321.1	43.4	-158.9	73.0	20.8	-11.6	32.8	-2.6
10	-198.7		-35.8		-7.3		14.9	

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	PITCH LINK LOAD	
	COS	SIN
0	-4959.5	71.8
1	2965.6	114.4
2	310.7	55.2
3	352.6	27.8
4	41.2	2.6
5	16.3	60.9
6	-10.2	16.4
7	587.1	-6.6
8	-31.3	76.0
9	95.9	39.4
10	-16.9	

RUN 24
 VKTS =
 V/OR =
 POINT 7
 140.9
 0.394
 OMEGA = 603.8
 RHO100 = 0.2188
 ALFS,C = 5.5
 CP/S = 0.003186
 CLR/S,R = 0.11311
 CDR/S,R = 0.01295
 CMY/S,R = 0.1694
 CMX/S,R = -0.0128

PSI	UPPER ROTOR BLADE NORMAL			BENDING MOMENT		UR EDGEMISE BENDING .1R	UR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS
	.1R	.2R	.3R	.6R					
0.00	-5213.	-1326.	-1978.	-2550.	0.		-182.		-3047.
11.25	-4303.	-1157.	-1955.	-2661.	0.		-79.		-3465.
22.50	-3179.	-429.	-1371.	-1895.	0.		-157.		-3151.
33.75	-1479.	712.	-323.	-1301.	0.		-175.		-2835.
45.00	1623.	2388.	559.	-1838.	0.		7.		-3383.
56.25	3860.	3854.	1042.	-1531.	0.		137.		-4124.
67.50	3962.	4402.	1583.	-69.	0.		107.		-3295.
78.75	5012.	5031.	2317.	31.	0.		42.		-926.
90.00	7826.	6482.	2836.	1037.	0.		1.		1099.
101.25	8418.	7252.	2936.	-784.	0.		-91.		2510.
112.50	5988.	6232.	2654.	395.	0.		-126.		4424.
123.75	4590.	4902.	2097.	230.	0.		-67.		5955.
135.00	5508.	4845.	1718.	-1596.	0.		-191.		5500.
146.25	6644.	5533.	1829.	-3818.	0.		-487.		4011.
157.50	6363.	5716.	1925.	-5173.	0.		-519.		3417.
168.75	4671.	4896.	1413.	-4884.	0.		-279.		4140.
180.00	1493.	3205.	481.	-3235.	0.		-203.		5672.
191.25	-1650.	1356.	-340.	-1379.	0.		-324.		7118.
202.50	-2666.	402.	-717.	-294.	0.		-369.		7577.
213.75	-1899.	638.	-550.	-99.	0.		-356.		7276.
225.00	-1052.	1334.	-92.	-95.	0.		-407.		6800.
236.25	-609.	1808.	222.	302.	0.		-493.		5918.
247.50	-578.	1930.	267.	1024.	0.		-590.		4882.
258.75	-1489.	1614.	167.	2115.	0.		-638.		4611.
270.00	-2981.	891.	-31.	3348.	0.		-568.		4843.
281.25	-3692.	281.	-332.	3513.	0.		-529.		4700.
292.50	-3607.	74.	-726.	2349.	0.		-637.		4126.
303.75	-3965.	-201.	-1161.	1093.	0.		-683.		3006.
315.00	-4538.	-689.	-1471.	267.	0.		-553.		1112.
326.25	-4271.	-814.	-1572.	-2274.	0.		-465.		-703.
337.50	-4037.	-648.	-1624.	-3406.	0.		-486.		-1636.
348.75	-4824.	-899.	-1780.	-2893.	0.		-400.		-2252.

RUN 24 POINT 7 CMY/S,R = 0.11311 CMX/S,R = 0.01295
 VKTS = 140.9 QMEGR = 603.8 ALFS,C = 5.5
 V/CR = 0.394 RH0100 = 0.2186 CP/S = 0.003186

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	8641.	6072.	3851.	-243.	-2702.	-140.	
288.75	7827.	6002.	4193.	80.	-4552.	-302.	
277.50	9372.	6319.	4594.	164.	-6324.	-440.	
266.25	11328.	7460.	4845.	77.	-6965.	-176.	
255.00	9790.	7400.	4643.	138.	-7049.	35.	
243.75	6845.	5828.	3898.	194.	-7804.	17.	
232.50	5793.	4324.	2870.	-47.	-9420.	41.	
221.25	5620.	3687.	2054.	-496.	-10103.	125.	
210.00	4665.	3190.	1535.	-932.	-9254.	186.	
198.75	2579.	2184.	786.	-1207.	-6485.	205.	
187.50	-967.	279.	-465.	-1197.	-8748.	164.	
176.25	-4782.	-2200.	-1755.	-963.	-6447.	151.	
165.00	-6617.	-3957.	-2522.	-751.	-6526.	144.	
153.75	-6354.	-4270.	-2603.	-660.	-4667.	36.	
142.50	-5341.	-3674.	-2133.	-579.	-4413.	52.	
131.25	-4165.	-2796.	-1424.	-430.	-4839.	216.	
120.00	-3072.	-1895.	-799.	-279.	-4502.	90.	
108.75	-2483.	-1182.	-259.	21.	-3603.	-206.	
97.50	-2475.	-777.	234.	200.	-3259.	-197.	
86.25	-2416.	-596.	583.	561.	-4034.	-130.	
75.00	-1451.	-303.	739.	586.	-5052.	-186.	
63.75	-180.	270.	622.	452.	-5107.	-8.	
52.50	17.	667.	950.	325.	-4001.	141.	
41.25	7.	711.	1098.	184.	-3093.	-92.	
30.00	993.	974.	1145.	-43.	-3241.	156.	
18.75	1110.	1268.	1037.	-157.	-2258.	164.	
7.50	-398.	811.	862.	-86.	-1852.	-13.	
356.25	-649.	259.	749.	-76.	-299.	-452.	
345.00	1134.	718.	862.	-175.	-481.	-379.	
333.75	2985.	1836.	1442.	-227.	-1883.	-281.	
322.50	5311.	3219.	2440.	-302.	-2457.	-449.	
311.25	8115.	4965.	3349.	-399.	-2152.	-153.	

RUN 24 POINT 8 CAV/S,R = 0.1812
 VPTS = 141.2 OMEG#R = 601.7 CLR/S,K = 0.12530
 V/C R = 0.396 RHU100 = 0.2184 CP/S = 0.004110 CDR/S,K = 0.01325

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1451.5		2970.9		808.2		-486.7	
1	-126.4	6902.0	-69.5	4268.2	213.5	2521.8	1277.2	-395.1
2	-1996.5	-1327.5	-1406.2	-967.0	-1043.1	-546.4	-2159.0	-416.6
3	-129.9	175.5	-71.7	52.3	-27.9	74.9	74.6	154.4
4	-72.2	-1191.7	193.7	-648.1	68.3	-282.4	21.3	1047.5
5	-341.6	885.9	-332.0	425.8	-137.2	186.0	296.3	-687.4
6	-249.5	-729.5	-4.1	-489.4	-58.5	-261.7	210.5	397.9
7	376.7	-84.4	201.8	-17.6	22.3	-42.0	-221.3	52.3
8	98.4	186.8	-11.5	71.1	-24.6	-29.2	-82.9	-128.2
9	-237.1	332.6	-125.5	58.9	37.0	-19.9	84.0	-258.8
10	-58.8	-11.6	-24.1	-7.1	-11.5	7.9	58.0	-100.9

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0		-335.4		2405.4	
1	0.0	0.0	42.7	290.7	-4013.6	-878.6
2	0.0	0.0	13.3	156.4	-668.8	-665.4
3	0.0	0.0	-13.3	-12.7	407.0	-358.4
4	0.0	0.0	3.9	42.8	24.2	1137.7
5	0.0	0.0	26.5	-47.5	15.1	-482.7
6	0.0	0.0	65.7	-0.9	39.2	79.3
7	0.0	0.0	-15.9	-6.8	-268.0	-282.9
8	0.0	0.0	42.7	21.4	59.4	-194.7
9	0.0	0.0	20.3	20.2	111.4	-48.9
10	0.0	0.0	-7.1	-28.5	-93.1	47.6

RUN 24 PCINT 8
 WTS = 141.2 OMEG*R = 601.7 ALFS,C = 5.5 CLK/S,R = 0.12530 CMY/S,R = 0.1812
 V/C = 0.395 RHJLOC = 0.2184 CP/S = 0.004110 CDK/S,R = 0.01325 CMX/S,R = -0.0135

PSI	UPPER ROTOR BLADE NORMAL			BENDING MOMENT °6R	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
	.1R	.2R	.3R				
0.00	-1285.	1322.	-153.	-928.	0.	-157.	-1982.
11.25	-244.	1608.	-63.	-1026.	0.	-147.	-2433.
22.50	219.	2346.	667.	-317.	0.	-172.	-2015.
33.75	2330.	3616.	1714.	-202.	0.	-75.	-1532.
45.00	6028.	5379.	2468.	-867.	0.	105.	-1672.
56.25	7720.	6620.	2880.	-201.	0.	176.	-2349.
67.50	7580.	6974.	3394.	1196.	0.	59.	-1349.
78.75	9010.	7758.	4108.	863.	0.	-52.	651.
90.00	11812.	9306.	4620.	-206.	0.	-78.	2443.
101.25	11761.	9783.	4622.	351.	0.	-160.	3594.
112.50	8684.	8320.	4067.	1682.	0.	-218.	5499.
123.75	6545.	6490.	3141.	1653.	0.	-142.	6859.
135.00	6562.	5768.	2403.	-123.	0.	-200.	6017.
146.25	6946.	5861.	2219.	-2796.	0.	-469.	4237.
157.50	6424.	5762.	2017.	-4973.	0.	-558.	3432.
168.75	4057.	4537.	1068.	-5321.	0.	-392.	3949.
180.00	-369.	2116.	-369.	-3949.	0.	-277.	5514.
191.25	-4488.	-408.	-1532.	-2335.	0.	-270.	7089.
202.50	-5776.	-1676.	-2097.	-1712.	0.	-303.	7217.
213.75	-4945.	-1527.	-2062.	-1994.	0.	-397.	6225.
225.00	-4003.	-817.	-1591.	-2146.	0.	-441.	5359.
236.25	-3366.	-187.	-1123.	-1603.	0.	-434.	4557.
247.50	-2996.	187.	-941.	-549.	0.	-577.	3739.
258.75	-3447.	157.	-860.	1071.	0.	-732.	3634.
270.00	-4247.	-131.	-690.	2890.	0.	-644.	3980.
281.25	-4051.	-101.	-516.	3573.	0.	-547.	3880.
292.50	-3081.	347.	-436.	2922.	0.	-648.	3234.
303.75	-2537.	639.	-435.	2012.	0.	-704.	1999.
315.00	-2099.	733.	-418.	772.	0.	-651.	258.
326.25	-1172.	1139.	-254.	-882.	0.	-662.	-888.
337.50	-830.	1600.	-9.	-1479.	0.	-608.	-989.
348.75	-1395.	1528.	27.	-950.	0.	-362.	-1184.

PUN 24 PJNT 8 CMG#R = 601.7 ALFS.C = 5.5 CLR/S,R = 0.12530 CMY/S,R = 0.1812
 VKTS = 141.2 RHD100 = 0.2184 CP/S = 0.004110 CDR/S,R = 0.01325 CMX/S,R = -0.0135
 V/CR = 0.396

PSI	LUMER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.LR	.2R	.3R	.6R			
300.00	9969.	7057.	4627.	-75.	-4299.	-106.	
288.75	9795.	7147.	5099.	251.	-6352.	-310.	
277.50	12023.	7916.	5663.	337.	-7850.	-397.	
266.25	13944.	9273.	6132.	333.	-8298.	-88.	
255.00	12670.	9369.	6077.	356.	-8413.	130.	
243.75	10300.	8015.	5406.	344.	-9274.	109.	
232.50	9396.	6745.	4492.	123.	-10437.	125.	
221.25	9387.	6250.	3817.	-369.	-10219.	174.	
210.00	8760.	5964.	3390.	-836.	-8879.	201.	
198.75	6468.	4975.	2640.	-991.	-8581.	262.	
187.50	2420.	2805.	1280.	-919.	-9158.	262.	
176.25	-1491.	143.	-126.	-724.	-8132.	179.	
165.00	-3221.	-1586.	-898.	-456.	-5643.	166.	
153.75	-3122.	-1920.	-976.	-333.	-4443.	226.	
142.50	-2550.	-1537.	-632.	-348.	-4933.	257.	
131.25	-1820.	-970.	-145.	-240.	-4910.	200.	
120.00	-1124.	-365.	227.	-40.	-3722.	30.	
108.75	-1262.	-37.	447.	141.	-2806.	-94.	
97.50	-2177.	-214.	611.	421.	-2959.	-48.	
86.25	-2561.	-561.	610.	639.	-3565.	-42.	
75.00	-2044.	-636.	376.	536.	-3628.	-124.	
63.75	-1513.	-546.	201.	361.	-2647.	-71.	
52.50	-1890.	-514.	290.	245.	-1268.	1.	
41.25	-513.	-226.	439.	-94.	-744.	-31.	
30.00	273.	348.	438.	-457.	-1044.	107.	
18.75	-447.	373.	301.	-416.	-737.	276.	
7.50	-1923.	-346.	104.	-237.	467.	36.	
356.25	-1548.	-670.	20.	-249.	884.	-298.	
345.00	345.	56.	381.	-242.	-385.	-310.	
333.75	2915.	1520.	1377.	-221.	-1921.	-341.	
322.50	6643.	3648.	2747.	-373.	-2469.	-461.	
311.25	9745.	5940.	3929.	-399.	-2874.	-284.	

RPN 24 PCINT 9
 VPTS = 142.4 CMV/S,R = 0.1834
 V/R = 0.400 RHJ100 = 0.2175 CP/S = 0.000919 CLR/S,R = 0.09029
 CMX/S,R = -0.0004 CDR/S,R = 0.01622

HARMONIC	UPPER ROTOR BLADE NORMAL BENDING MOMENT							
	.1R		.2R		.3R		.6R	
	COS	SIN	CCS	SIN	COS	SIN	CCS	SIN
0	-1031.5	3273.6	1185.3	1591.8	-468.1	766.1	-1621.5	1862.5
1	-4734.6	-206.8	-3121.2	-79.9	-1942.8	117.1	-729.2	954.7
2	-928.7	300.8	-634.6	192.8	-492.7	126.8	-1135.2	284.3
3	200.8	-759.2	116.5	-422.5	38.2	-199.9	-412.4	634.3
4	-42.9	703.8	172.3	393.7	117.5	177.6	137.5	-558.0
5	-133.6	-485.5	-157.4	-358.6	-56.1	-181.7	129.1	268.1
6	-211.7	100.8	-35.4	-15.5	-68.0	-31.0	198.3	57.9
7	294.5	323.9	191.5	105.3	56.2	-47.7	-167.5	-244.2
8	100.0	169.0	-11.7	-33.8	0.1	8.5	-77.0	-213.0
9	-348.7	-9.4	-171.2	-7.4	23.4	11.4	233.6	-61.4
10	-70.4		-19.1		15.8		49.9	

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R				UPPER ROTOR PITCH LINK LOAD				UPPER ROTOR SHAFT STRESS			
	COS		SIN		COS		SIN		COS		SIN	
0	0.0	0.0	0.0	0.0	-421.8	351.6	2022.0	2744.6	2022.0	2744.6	2022.0	2744.6
1	0.0	0.0	0.0	0.0	-40.4	52.3	-3049.6	-929.3	-3049.6	-929.3	-3049.6	-929.3
2	0.0	0.0	0.0	0.0	-10.0	21.3	-515.7	-27.8	-515.7	-27.8	-515.7	-27.8
3	0.0	0.0	0.0	0.0	-105.3	-26.3	389.3	1031.3	389.3	1031.3	389.3	1031.3
4	0.0	0.0	0.0	0.0	-16.1	-42.2	-270.9	-396.4	-270.9	-396.4	-270.9	-396.4
5	0.0	0.0	0.0	0.0	-57.8	50.8	36.6	59.9	36.6	59.9	36.6	59.9
6	0.0	0.0	0.0	0.0	33.6	99.4	-0.3	-252.8	-0.3	-252.8	-0.3	-252.8
7	0.0	0.0	0.0	0.0	68.0	33.0	-235.5	-337.5	-235.5	-337.5	-235.5	-337.5
8	0.0	0.0	0.0	0.0	39.8	-0.7	127.7	23.8	127.7	23.8	127.7	23.8
9	0.0	0.0	0.0	0.0	8.4	-32.1	32.0	-6.6	32.0	-6.6	32.0	-6.6
10	0.0	0.0	0.0	0.0	1.2		-59.7		-59.7		-59.7	

RUN 24 PUNT 9 CMGCR = 600.4 ALFS,C = 7.9 CLR/S,R = 0.09029 CMY/S,R = 0.1804
 VKTS = 142.4 RHO100 = 0.2175 CP/S = 0.000919 CDR/S,R = 0.01622 CMX/S,R = -0.00024
 V/DR = 0.400

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1087.5	-1098.0	-1008.7	-662.9	-509.8	87.1	-405.0	514.4
1	4729.7	1430.3	3548.8	1319.9	2689.3	807.1	635.8	230.3
2	-3359.0	-199.9	-2256.8	-40.5	-1701.8	8.1	-492.4	69.6
3	-234.8	199.9	-132.8	174.5	-14.2	98.9	116.7	-40.4
4	-229.8	-722.2	-23.6	-366.2	25.8	-182.1	20.8	83.5
5	-89.8	421.2	-192.7	348.1	-37.2	142.8	23.4	-49.6
6	-41.7	273.0	-127.5	4.6	-84.2	-30.8	38.7	-19.5
7	211.7	-64.1	201.0	17.9	76.3	16.1	-20.8	4.4
8	-132.6	15.1	-33.9	102.9	19.3	-1.0	11.8	-11.0
9	-334.9	9.1	-92.5	67.9	-5.0	5.4	27.5	0.7
10	-142.3		-23.9		-2.3		-4.3	

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5068.7	-718.7	-133.1	98.5
1	1522.7	-2717.5	-177.3	92.6
2	615.6	138.1	35.3	26.9
3	457.1	-76.5	-7.0	-26.1
4	54.7	34.0	-46.3	-28.5
5	24.3	-67.4	-14.4	18.7
6	26.8	-679.9	43.0	26.9
7	1270.6	-152.4	10.8	-6.4
8	-39.4	-17.1	11.2	55.6
9	-4.3	-11.8	-1.6	15.9
10	-0.8		-36.2	

CHY/S,R = 0.1304
CHX/S,R = -0.0004

CLR/S,R = 0.09029
CDR/S,R = 0.01622

ALFS,C = 7.9
CP/S = 0.000919

PCINT 9
OMEG#R = 600.4
RHQ100 = 0.2175

RUN 24
VKTS =
V/VR =

UPPER ROTOR
SHAFT STRESS

UR PITCH
LINK LOAD

UR EDGEWISE
BENDING .1R

UPPER ROTOR BLADE NORMAL BENDING MOMENT
.1R .3R .6R

PSI	.1R	.3R	.6R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
0.00	-6887.	-2485.	-2777.	-3394.	-1524.
11.25	-5633.	-2132.	-2726.	-3655.	-1271.
22.50	-4889.	-1580.	-2305.	-2774.	51.
33.75	-4130.	-976.	-1563.	-1972.	1261.
45.00	-1903.	80.	-1045.	-2434.	1220.
56.25	-133.	1132.	-798.	-2381.	767.
67.50	-148.	1533.	-318.	-1457.	1603.
78.75	1015.	2194.	447.	-1976.	3607.
90.00	4183.	3809.	1049.	-3679.	5107.
101.25	5362.	4864.	1252.	-3817.	6040.
112.50	3580.	4208.	1112.	-2425.	7715.
123.75	2837.	3346.	869.	-1999.	9241.
135.00	4567.	3864.	944.	-3106.	8415.
146.25	6067.	5030.	1449.	-4119.	5883.
157.50	5867.	5470.	1868.	-4003.	4198.
168.75	4601.	4954.	1674.	-3009.	3956.
180.00	2516.	3799.	986.	-1502.	4130.
191.25	187.	2437.	378.	106.	4196.
202.50	-772.	1699.	238.	842.	3935.
213.75	-47.	1972.	398.	398.	3037.
225.00	665.	2466.	495.	-28.	1629.
236.25	299.	2391.	452.	323.	273.
247.50	-648.	1917.	296.	901.	-452.
258.75	-1962.	1255.	-90.	1577.	-435.
270.00	-3710.	261.	-660.	2332.	-198.
281.25	-5014.	-715.	-1201.	2087.	-76.
292.50	-5482.	-1229.	-1718.	716.	1.
303.75	-6108.	-1704.	-2283.	-531.	-418.
315.00	-6883.	-2404.	-2736.	-1775.	-1582.
326.25	-6794.	-2683.	-2933.	-3468.	-2336.
337.50	-6561.	-2441.	-2919.	-4156.	-1896.
348.75	-7050.	-2401.	-2816.	-3507.	-1374.

RUN 24
 VKTS =
 V/CR =
 PCINT 9
 142.4
 0.400
 CMEG#R = 600.4
 RHJ100 = 0.2175
 ALFS,C = 7.9
 CP/S = 0.000919
 CLR/S,R = 0.09029
 CDR/S,R = 0.01622
 CMY/S,R = 0.1804
 CMX/S,R = -0.0004

PSI	LOWER ROTOR BLADE NORMAL			BENDING MOMENT		LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
	.1R	.2R	.3R	.6R			
300.00	1630.	1341.	790.	-546.		-696.	-371.
288.75	1501.	1363.	987.	-428.		-3463.	-419.
277.50	2664.	1705.	1290.	-406.		-5618.	-388.
266.25	3793.	2437.	1365.	-478.		-5268.	-222.
255.00	2042.	2017.	798.	-493.		-4739.	-93.
243.75	-1438.	-14.	-324.	-429.		-6540.	-48.
232.50	-3407.	-1974.	-1475.	-559.		-9074.	-27.
221.25	-3655.	-2794.	-2276.	-1017.		-9200.	0.
210.00	-4260.	-3179.	-2806.	-1493.		-7346.	48.
198.75	-6289.	-4079.	-3435.	-1697.		-6623.	56.
187.50	-9011.	-5670.	-4350.	-1688.		-7580.	31.
176.25	-10989.	-7278.	-5156.	-1555.		-7478.	93.
165.00	-11405.	-7920.	-5367.	-1314.		-5047.	119.
153.75	-10318.	-7328.	-4716.	-1084.		-2720.	-26.
142.50	-8277.	-6023.	-3667.	-886.		-2948.	-49.
131.25	-6216.	-4560.	-2612.	-578.		-4652.	120.
120.00	-4539.	-3172.	-1564.	-184.		-5150.	59.
108.75	-2734.	-1775.	-433.	150.		-4319.	-185.
97.50	-961.	-346.	659.	444.		-4556.	-199.
86.25	54.	775.	1492.	689.		-6771.	-129.
75.00	1674.	1594.	2032.	739.		-8789.	-153.
63.75	3245.	2480.	2378.	650.		-8515.	-13.
52.50	3121.	2947.	2486.	610.		-6875.	140.
41.25	1705.	2397.	2237.	561.		-6228.	-58.
30.00	1198.	1633.	1738.	393.		-6750.	-267.
18.75	734.	1259.	1216.	187.		-6103.	-184.
7.50	-1066.	537.	743.	60.		-3190.	-188.
356.25	-1930.	-394.	332.	-123.		-472.	-376.
345.00	-585.	-372.	113.	-410.		-618.	-409.
333.75	653.	330.	180.	-655.		-2256.	-348.
322.50	982.	742.	425.	-737.		-2121.	-384.
311.25	1484.	1041.	649.	-676.		-490.	-391.

RUN 24 POINT 10 UMEGR = 607.1 ALFS,C = 7.9 CLR/S,R = 0.09034 CMV/S,R = 0.1801
 VKTS = 142.5 RHJ100 = 0.2175 CP/S = 0.000884 CDR/S,R = 0.01615 CMX/S,R = 0.0003
 V/CIR = 0.396

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1020.8	2884.1	1227.2	1330.7	-466.5	589.3	-1593.1	-1939.2
1	-4763.1	-349.2	-3080.7	-175.7	-1882.6	35.2	-438.2	717.0
2	-883.6	367.6	-614.3	246.1	-506.0	153.7	-1317.2	103.3
3	164.9	-723.4	26.3	-349.6	-6.4	-154.5	-433.2	585.6
4	172.9	493.0	286.4	215.4	172.4	104.0	-14.1	394.9
5	-413.4	-487.8	-291.7	-341.5	-125.3	-187.1	354.4	290.5
6	26.4	34.8	105.3	70.3	9.0	5.0	104.8	-12.4
7	324.8	320.7	166.8	77.5	57.8	-46.1	-177.6	-225.8
8	-116.1	-86.5	-80.2	-104.4	21.6	26.3	81.0	-55.7
9	-417.1	-75.0	-130.8	-10.2	-3.9	23.3	248.4	-53.0
10	-67.7		-15.3		-4.6		84.4	

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-416.4	356.1	2030.7	2653.5
1	0.0	0.0	-65.1	54.2	-2848.2	-959.4
2	0.0	0.0	-10.4	-17.0	-390.0	56.9
3	0.0	0.0	-103.5	-18.0	329.2	863.4
4	0.0	0.0	-0.4	-57.5	-631.3	-306.1
5	0.0	0.0	-33.3	67.2	118.1	47.8
6	0.0	0.0	9.9	105.3	-71.6	-307.8
7	0.0	0.0	28.4	40.6	-80.4	-197.3
8	0.0	0.0	23.5	-2.3	384.0	50.8
9	0.0	0.0	-5.2	-30.6	36.9	-19.3
10	0.0	0.0	19.0		-28.0	

PUN 24 PGINT 10 OMEG+R = 607.1 ALFS+C = 7.9 CLR/S,R = 0.09034 CMY/S,R = 0.1801
 VKTS = 142.5 RHJ100 = 0.2175 CP/S = 0.000884 CDR/S,R = 0.01615 CMX/S,R = 0.0003
 V/VR = 0.396

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-1909.2	-1310.1	-1023.8	-833.8	-517.1	-43.5	-408.1	477.6
1	4817.4	1872.8	3617.3	1607.7	2765.5	1028.9	673.7	501.9
2	-3079.3	-157.9	-2031.0	-17.0	-1558.1	7.8	-456.3	35.0
3	-281.3	183.7	-127.2	150.7	-1.1	83.5	133.1	-27.1
4	-140.6	-645.1	20.6	-305.7	52.8	-169.4	10.7	76.6
5	-274.8	510.2	-294.5	337.3	-87.0	155.5	38.0	-53.3
6	-243.6	128.0	36.7	-63.4	2.1	-32.0	22.8	-0.7
7	304.8	-15.2	153.2	33.1	37.9	-8.7	13.2	1.7
8	-142.8	290.7	-47.8	154.5	13.6	-10.1	21.7	-33.7
9	-258.2	126.9	23.9	68.3	4.6	14.2	4.9	-13.7
10	-59.8		28.7		-14.4			

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5153.4	-933.1	-133.9	115.5
1	1564.5	-2800.6	-172.7	85.3
2	220.7	-53.3	45.6	24.6
3	396.5	-49.1	-0.8	-3.1
4	74.7	6.7	-53.6	-22.3
5	69.5	-117.1	-13.1	-1.0
6	39.1	-862.5	43.2	9.1
7	298.1	-79.3	42.5	3.2
8	-49.9	-71.6	-5.4	30.8
9	-17.0	10.0	25.4	20.9
10	-26.7		-5.3	

PUN 24	PLINT 10	UMEG#R = 607.1	ALF5,C = 7.9	CLR/S,R = 0.09034	CMY/S,R = 0.1801
VKTS = 142.5	RHJ100 = 0.2175	CP/S = 0.000884	CDK/S,R = 0.01615		CMX/S,R = 0.0003
V/QR = 0.396					
	UPPER ROTOR BLADE NORMAL BENDING MOMENT	UP. EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS	
PSI	.1R	.3K	.6R		
0.00	-6993.	-2401.	-2735.	-3100.	-554.
11.25	-6017.	-2215.	-2692.	-3523.	-396.
22.50	-4911.	-1654.	-2416.	-3170.	-378.
33.75	-4405.	-1069.	-1766.	-2282.	-365.
45.00	-2639.	-110.	-1105.	-2378.	-165.
56.25	-307.	1046.	-801.	-2475.	162.
67.50	1.	1524.	-521.	-1552.	201.
78.75	134.	1805.	109.	-1415.	-81.
90.00	2849.	3063.	790.	-2879.	-204.
101.25	5244.	4551.	1130.	-3761.	-103.
112.50	4275.	4515.	1119.	-2946.	-112.
123.75	2786.	3545.	908.	-2131.	-190.
135.00	3749.	3509.	804.	-2717.	-212.
146.25	5473.	4527.	1121.	-3923.	-290.
157.50	5801.	5278.	1628.	-4298.	-340.
168.75	4911.	5116.	1713.	-3534.	-237.
180.00	3215.	4219.	1186.	-2208.	-196.
191.25	970.	2908.	492.	-738.	-299.
202.50	-614.	1857.	161.	363.	-378.
213.75	-610.	1721.	241.	493.	-493.
225.00	146.	2142.	361.	129.	-708.
236.25	321.	2291.	354.	218.	-824.
247.50	-250.	2069.	328.	663.	-775.
258.75	-1296.	1652.	162.	1238.	-673.
270.00	-2927.	832.	-332.	2083.	-620.
281.25	-4555.	-203.	-930.	2362.	-757.
292.50	-5263.	-886.	-1435.	1400.	-963.
303.75	-5672.	-1397.	-1989.	147.	-830.
315.00	-6496.	-2099.	-2530.	-1026.	-486.
326.25	-6730.	-2466.	-2774.	-2712.	-499.
337.50	-6277.	-2243.	-2770.	-3852.	-774.
348.75	-6580.	-2175.	-2741.	-3454.	-787.

PUN 24 POINT 10 OMEG#R = 607.1 ALFS,C = 7.9 CLR/S,R = 0.09034 CMY/S,R = 0.1801
 VVTS = 142.5 RHD100 = 0.2175 CP/S = 0.000384 CDK/S,R = 0.01615 CMX/S,R = 0.0003
 V/CR = 0.396

PSI	LOWER ROTCR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1K	.2K	.3K	.6R			
300.00	1647.	1150.	713.	-630.	-616.	-366.	
288.75	1584.	1375.	837.	-493.	-2182.	-386.	
277.50	1891.	1480.	1139.	-394.	-4427.	-417.	
266.25	3267.	2044.	1337.	-485.	-5458.	-316.	
255.00	2861.	2198.	945.	-538.	-5564.	-139.	
243.75	-419.	693.	-20.	-428.	-6237.	-54.	
232.50	-3255.	-1527.	-1154.	-471.	-7844.	-56.	
221.25	-3796.	-2776.	-2111.	-857.	-9018.	-26.	
210.00	-4065.	-3159.	-2745.	-1342.	-8539.	62.	
198.75	-5780.	-3832.	-3285.	-1641.	-7323.	97.	
187.50	-8349.	-5262.	-4104.	-1703.	-7030.	33.	
176.25	-10486.	-6900.	-5018.	-1605.	-7194.	19.	
165.00	-11410.	-7854.	-5419.	-1427.	-6154.	90.	
153.75	-10886.	-7715.	-5063.	-1218.	-4234.	66.	
142.50	-9148.	-6660.	-4153.	-994.	-3365.	-17.	
131.25	-7003.	-5099.	-2981.	-703.	-4059.	33.	
120.00	-5210.	-3557.	-1834.	-309.	-4911.	81.	
108.75	-3457.	-2260.	-806.	88.	-4918.	-50.	
97.50	-1550.	-916.	235.	378.	-4858.	-176.	
86.25	1.	429.	1233.	601.	-5953.	-181.	
75.00	1281.	1423.	1958.	743.	-7849.	-161.	
63.75	2945.	2295.	2385.	702.	-8763.	-51.	
52.50	3654.	3014.	2556.	590.	-7978.	109.	
41.25	2394.	2801.	2400.	572.	-6792.	24.	
30.00	1247.	1932.	1985.	502.	-6493.	-216.	
18.75	1085.	1457.	1498.	278.	-6288.	-239.	
7.50	-87.	995.	1008.	102.	-4512.	-167.	
356.25	-1616.	23.	561.	-31.	-1674.	-266.	
345.00	-947.	-361.	266.	-329.	-352.	-422.	
333.75	525.	259.	188.	-636.	-1253.	-404.	
322.50	894.	724.	330.	-708.	-1962.	-379.	
311.25	1037.	824.	571.	-671.	-1099.	-355.	

PUR 24 POINT 11
 VPTS = 160.6 UNEGTR = 603.8 ALFS,C = 2.8 CLK/S,R = 0.08466 CMY/S,R = 0.1025
 V/PR = 0.449 RHU100 = 0.2137 CP/S = 0.003551 CWR/S,R = 0.00762 CMA/S,R = -0.0174

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.5R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-4932.9	-247.0	-1589.0	2141.7	-2333.8	1135.4	-2909.6	-1331.9
1	-17.2	-725.8	856.4	-1227.1	829.4	-735.7	1873.3	-961.6
2	8.8	-403.4	-556.3	-43.4	-415.2	20.9	-593.5	483.4
3	-321.2	19.7	-94.2	-569.6	-42.1	-232.7	496.3	880.3
4	37.2	-78.4	-122.8	371.9	1.9	206.5	720.0	-612.2
5	-413.1	-10.9	-379.4	-446.9	-136.9	-239.1	325.9	430.6
6	-189.9	103.8	21.9	28.6	-33.7	-40.6	153.9	2.8
7	-47.4	-46.4	141.8	58.7	25.9	-4.1	-216.0	-105.3
8	5.2	71.5	-4.9	97.0	-18.5	-12.1	-94.9	-126.9
9	-40.0	39.7	33.6	-1.7	24.3	17.7	-143.4	-3.5
10	-58.0		21.7		17.2		-4.7	

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN

0	0.0	0.0	-564.0	215.3	2424.1	-2462.8
1	0.0	0.0	49.1	118.8	-3890.5	-717.9
2	0.0	0.0	-100.4	-10.2	-535.1	-359.7
3	0.0	0.0	-17.1	-7.4	544.1	805.9
4	0.0	0.0	-84.5	110.6	-54.9	-310.4
5	0.0	0.0	84.3	29.3	152.8	4.8
6	0.0	0.0	-3.8	22.9	26.1	-217.9
7	0.0	0.0	60.1	37.6	-303.5	-113.8
8	0.0	0.0	4.4	33.9	18.4	-12.6
9	0.0	0.0	10.6	-6.8	83.7	-29.2
10	0.0	0.0	-17.2		10.9	

RUN 24 POINT 11
 VKTS = 100.6 OMEG#R = 603.8 ALFS,C = 2.8 CLR/S,R = 0.08466 CMY/S,R = 0.1025
 V/CIR = 0.449 RHU100 = 0.2137 CP/S = 0.003551 CDR/S,R = 0.00762 CMX/S,R = -0.0174

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	55.6		465.7		503.8		-271.6	
1	-2123.3	-5100.5	-1534.2	-2952.3	-762.6	-1579.6	132.0	257.6
2	-3604.0	531.9	-2681.4	677.0	-2119.1	207.2	-693.0	-93.3
3	-327.0	-487.2	-253.2	-231.8	-101.9	-108.0	82.8	108.0
4	-316.0	793.0	12.7	475.8	-7.2	182.4	13.8	-139.8
5	-66.5	101.6	-16.8	96.3	-27.3	64.9	3.3	-14.0
6	-253.5	430.8	1.2	290.7	-7.7	130.5	13.0	-41.1
7	213.1	261.4	149.3	-21.9	40.6	-54.7	-28.8	-16.1
8	-49.6	-27.8	-17.6	-2.6	16.7	-19.2	11.2	6.1
9	-380.1	-443.7	-228.1	20.2	25.3	-17.3	49.9	43.3
10	-83.7	105.1	11.8	62.0	-9.7	-12.0	23.7	-20.7

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	LOWER ROTOR PITCH LINK LOAD	
	COS	SIN
0	-90.4	
1	-212.3	-53.7
2	154.6	75.9
3	34.7	106.4
4	-21.8	-7.4
5	30.2	26.5
6	15.8	35.3
7	0.2	-4.6
8	-28.3	-5.7
9	-107.4	-9.5
10	-7.2	-6.9

RUN 24 PCINT 11
 VKTS = 160.6 OMEG#R = 603.8 ALFS,C = 2.8 CLK/S,R = 0.08465 CMY/S,R = 0.1025
 V/CR = 0.449 RHU100 = 0.2137 CP/S = 0.003551 CDR/S,R = 0.00762 CMX/S,R = -0.0174

PSI	UPPER ROTOR BLADE NORMAL BENDING MOMENT			UR EDGEMISE BENDING .1R		UR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	.1R	.2R	.3R	.6R					
0.00	-50428.	-1671.	-2082.	-393.	0.	-578.	-1524.		
11.25	-50373.	-2020.	-2334.	-549.	0.	-522.	-2463.		
22.50	-50173.	-1925.	-2142.	-1284.	0.	-615.	-2558.		
33.75	-50152.	-981.	-1636.	-3217.	0.	-522.	-2592.		
45.00	-50082.	81.	-1393.	-4890.	0.	-124.	-3265.		
56.25	-50177.	272.	-1465.	-4749.	0.	109.	-3585.		
67.50	-50220.	14.	-1356.	-3907.	0.	-75.	-2454.		
78.75	-49689.	415.	-956.	-3996.	0.	-315.	-678.		
90.00	-49066.	1421.	-569.	-4397.	0.	-397.	677.		
101.25	-48929.	1899.	-461.	-3878.	0.	-464.	1938.		
112.50	-48967.	1246.	-839.	-2795.	0.	-480.	3658.		
123.75	-49131.	105.	-1549.	-2304.	0.	-382.	5065.		
135.00	-49622.	-485.	-1932.	-3077.	0.	-364.	5017.		
146.25	-49824.	-219.	-1788.	-4932.	0.	-507.	3900.		
157.50	-49315.	102.	-1785.	-6554.	0.	-701.	3280.		
168.75	-43776.	-708.	-2430.	-6471.	0.	-900.	3928.		
180.00	-48751.	-2788.	-3483.	-5065.	0.	-953.	5303.		
191.25	-49012.	-4816.	-4446.	-4139.	0.	-703.	6574.		
202.50	-49319.	-5596.	-4922.	-4382.	0.	-430.	7205.		
213.75	-49679.	-5297.	-4769.	-5016.	0.	-471.	7140.		
225.00	-50118.	-4586.	-4273.	-5350.	0.	-661.	6776.		
236.25	-50395.	-3851.	-3851.	-4900.	0.	-728.	6273.		
247.50	-50076.	-3560.	-3649.	-3178.	0.	-716.	5496.		
258.75	-49397.	-3819.	-3538.	-811.	0.	-690.	4919.		
270.00	-49157.	-3830.	-3268.	717.	0.	-649.	5094.		
281.25	-49282.	-3143.	-2763.	1034.	0.	-677.	5317.		
292.50	-49055.	-2340.	-2289.	722.	0.	-779.	4542.		
303.75	-48474.	-1682.	-2029.	-227.	0.	-813.	2974.		
315.00	-47677.	-894.	-1819.	-1581.	0.	-752.	1481.		
326.25	-47521.	-365.	-1596.	-2005.	0.	-720.	529.		
337.50	-48060.	-615.	-1540.	-1140.	0.	-752.	77.		
348.75	-49475.	-1216.	-1731.	-393.	0.	-720.	-452.		

ORIGINAL PAGE IS
OF POOR QUALITY

RUN 24
VKTS =
V/CR =

PCINT 11
160.6
0.449

CMEGPR = 603.8
RHO100 = 0.2137

ALFS,C = 2.8
CP/S = 0.003551

CLR/S,R = 0.08466
CDR/S,R = 0.00762

CMY/S,R = 0.1025
CMX/S,R = -0.0174

PSI	LOWER RCTUK IR	BLADE NORMAL .2R	BENDING MOMENT .3R	LR EDGEWISE BENDING .1R	LR PITCH LINK LOAD
300.00	6167.	4126.	2714.	-4206.	-141.
288.75	5987.	4621.	3320.	-5425.	-268.
277.50	7410.	5037.	3803.	-7134.	-319.
266.25	9209.	6100.	4076.	-8199.	-67.
255.00	8389.	6258.	4013.	-7951.	95.
243.75	6209.	5159.	3573.	-7447.	46.
232.50	6289.	4364.	2786.	-7822.	99.
221.25	6132.	4010.	1944.	-8147.	221.
210.00	4368.	3151.	1300.	-7150.	168.
198.75	2587.	2009.	640.	-5797.	108.
187.50	460.	774.	-235.	-5425.	223.
176.25	-2555.	-922.	-1020.	-5189.	269.
165.00	-4380.	-2249.	-1348.	-4066.	167.
153.75	-3411.	-2211.	-1200.	-3024.	197.
142.50	-2972.	-1603.	-735.	-3105.	270.
131.25	-2996.	-1297.	-156.	-3802.	50.
120.00	-1628.	-754.	367.	-4435.	-251.
108.75	-507.	198.	829.	-4921.	-302.
97.50	-674.	661.	1199.	-5153.	-338.
86.25	-1633.	352.	1242.	-5212.	-482.
75.00	-1974.	-130.	798.	-5349.	-387.
63.75	-2546.	-682.	53.	-5003.	-157.
52.50	-4380.	-1657.	-650.	-3374.	-224.
41.25	-5481.	-2668.	-1188.	-1163.	-313.
30.00	-4911.	-2993.	-1686.	141.	-43.
18.75	-4991.	-3057.	-2172.	541.	136.
7.50	-6477.	-3650.	-2445.	1165.	-93.
356.25	-6756.	-4167.	-2404.	1914.	-245.
345.00	-4796.	-3594.	-2061.	1471.	-178.
333.75	-2051.	-2199.	-1205.	-409.	-309.
322.50	593.	-282.	242.	-2397.	-493.
311.25	4493.	2205.	1729.	-3507.	-330.

FUN 24 PLINT 12 CMY/S,R F 0.1019
 VMTS = 160.6 UMEG#R = 606.2 ALFS,C = 2.8 CLR/S,R = 0.08466
 J/CR = 0.447 RMJLOC = 0.2137 CP/S = 0.003623 CDR/S,R = 0.00751 CMX/S,R = -0.0167

HARMONIC	UPPER ROTOR BLADE NORMAL BENDING MOMENT		UPPER ROTOR SHAFT STRESS		UPPER ROTOR BENDING MOMENT		UPPER ROTOR SHAFT STRESS	
	-1R		-2R		-3R		-6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-14554.3	309.3	-1397.1	2577.8	-2210.5	1421.4	-2865.1	-1183.6
1	189.7	-204.4	481.6	-1064.8	566.9	-603.4	1572.2	-584.1
2	-138.6	-902.4	-593.6	-22.2	-423.7	23.6	-464.2	378.6
3	297.9	411.1	-69.7	-629.5	-36.2	-271.5	439.3	878.3
4	-225.9	27.3	-220.8	471.5	-49.6	242.1	917.0	-726.3
5	236.0	154.5	-321.6	-445.4	-100.9	-231.2	215.8	375.4
6	-320.8	-689.7	-91.3	-24.5	-94.6	-55.8	263.9	66.2
7	591.1	392.7	151.3	71.8	17.6	0.5	-215.0	-91.4
8	-204.5	-121.7	4.9	99.8	-19.1	-18.9	-130.3	-106.4
9	10.9	472.0	50.2	-5.6	14.5	-0.0	-187.2	-11.3
10	-232.4		25.4		14.8		-33.5	

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT -1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	0.0	0.0	-573.9	216.7	2412.5	-430.7
1	0.0	0.0	61.5	131.4	-4235.1	-730.4
2	0.0	0.0	-91.6	-11.1	-570.8	-281.6
3	0.0	0.0	-16.2	-1.3	474.2	877.3
4	0.0	0.0	-83.3	-135.0	68.2	-346.3
5	0.0	0.0	81.7	27.7	99.5	-4.4
6	0.0	0.0	2.5	3.7	35.3	-138.6
7	0.0	0.0	73.4	30.8	-309.5	-133.3
8	0.0	0.0	20.6	28.8	30.2	-50.9
9	0.0	0.0	13.8	7.5	93.0	-3.2
10	0.0	0.0	-24.3		6.2	

PUN 24 PCINT 12 CMY/S,R = 0.1019
 VKTS = 160.6 UMEGR = 606.2 CLR/S,R = 0.08465
 V/CR = 0.447 RHUIG = 0.2137 CP/S = 0.003623 CDR/S,R = 0.00751
 CMX/S,R = -0.0187

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-186.1		260.0		376.3		-286.7	
1	-1392.1	-4426.7	-996.7	-2509.4	-422.9	-1258.1	158.3	322.1
2	-3763.7	433.5	-2798.3	612.7	-2178.6	153.7	-698.8	-97.5
3	-229.7	-476.9	-201.2	-225.1	-61.7	-98.7	65.0	125.6
4	-477.6	724.9	-83.0	477.9	-44.7	187.2	39.3	-120.4
5	-73.0	124.6	-9.1	110.4	-25.6	68.2	11.4	-17.8
6	-396.2	442.9	-68.5	337.8	-45.9	150.9	23.9	-48.1
7	139.3	301.3	145.1	19.8	55.6	-50.7	-12.2	5.4
8	-75.3	-35.6	-27.7	-6.7	17.3	-13.0	9.9	48.6
9	-287.4	-520.2	-222.2	-63.5	33.2	-7.9	36.7	13.2
10	-123.5	60.7	-20.9	53.5	-13.6	-7.4	0.9	

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-4047.1		-92.8	
1	2638.2	1256.9	-204.6	-56.7
2	2540.4	-1115.1	144.2	95.0
3	558.7	428.0	25.3	104.0
4	16.2	28.6	-24.6	-11.9
5	35.8	45.3	17.7	36.5
6	35.3	-127.2	6.2	45.6
7	196.3	-452.0	-0.3	-15.7
8	-129.6	-79.6	-25.5	-19.4
9	166.8	16.6	-101.9	-34.0
10	-5.2	-46.0	-14.1	-1.6

RUN 24 POINT 12
 VKTS = 160.6 CMG#R = 606.2 ALFS,C = 2.8 CLK/S,R = 0.08466 CMY/S,R = 0.1019
 V/CR = 0.447 RHO100 = 0.2137 CP/S = 0.003623 CDR/S,R = 0.00751 C4X/S,R = -0.0167

	UPPER ROTOR BLADE	NORMAL	BENDING	MOMENT	UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS
PSI	.1R	.2R	.3R	.6R			
0.00	-14351.	-1981.	-2321.	-487.	0.	-536.	-1896.
11.25	-14226.	-2132.	-2426.	-531.	0.	-535.	-2352.
22.50	-15200.	-1759.	-2002.	-1286.	0.	-661.	-2038.
33.75	-15384.	-575.	-1400.	-3302.	0.	-501.	-1713.
45.00	-14275.	525.	-1155.	-4697.	0.	-41.	-2105.
56.25	-14905.	660.	-1150.	-4211.	0.	129.	-2128.
67.50	-15543.	506.	-945.	-3514.	0.	-123.	-702.
78.75	-14510.	1149.	-498.	-3920.	0.	-335.	1247.
90.00	-12487.	2242.	-99.	-4306.	0.	-405.	2632.
101.25	-12642.	2518.	-79.	-3625.	0.	-501.	4019.
112.50	-13553.	1626.	-597.	-2576.	0.	-501.	5855.
123.75	-14035.	534.	-1264.	-2351.	0.	-382.	6990.
135.00	-14366.	255.	-1452.	-3483.	0.	-381.	6460.
146.25	-13415.	734.	-1229.	-5419.	0.	-536.	5099.
157.50	-14649.	917.	-1316.	-6583.	0.	-750.	4380.
168.75	-17952.	-248.	-2095.	-5860.	0.	-968.	4812.
180.00	-17002.	-2564.	-3244.	-4137.	0.	-964.	5859.
191.25	-13156.	-4556.	-4204.	-3247.	0.	-654.	6642.
202.50	-12750.	-5176.	-4590.	-3689.	0.	-415.	6657.
213.75	-14409.	-4801.	-4396.	-4563.	0.	-496.	6114.
225.00	-14564.	-4118.	-3949.	-5070.	0.	-676.	5395.
236.25	-14694.	-3491.	-3632.	-4694.	0.	-760.	4496.
247.50	-15303.	-3433.	-3589.	-3010.	0.	-750.	3543.
258.75	-15460.	-3971.	-3633.	-717.	0.	-677.	3159.
270.00	-16099.	-4149.	-3453.	616.	0.	-641.	3448.
281.25	-16097.	-3537.	-3039.	656.	0.	-721.	3482.
292.50	-14173.	-2815.	-2662.	124.	0.	-806.	2564.
303.75	-13358.	-2189.	-2412.	-988.	0.	-808.	1081.
315.00	-14426.	-1348.	-2164.	-2400.	0.	-781.	-253.
326.25	-14256.	-799.	-1922.	-2580.	0.	-766.	-1025.
337.50	-13548.	-1080.	-1830.	-1347.	0.	-750.	-1202.
348.75	-14167.	-1650.	-1991.	-489.	0.	-672.	-1324.

RUN 24
 VKTS =
 V/CP =

POINT 12
 160.6
 0.447

UMEG*R = 606.2
 RHU160 = 0.2137

ALFS,C = 2.8
 CP/S = 0.003623

CLR/S,R = 0.08466
 CDR/S,R = 0.00751

CMY/S,R = 0.1019
 CMX/S,R = -0.0187

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT		LR EDGEMISE BENDING .LR		LR PITCH LINK LOAD	
	.LR	.2R	.3R	.6R		
300.00	5518.	3536.	2519.	-265.	-4126.	-126.
288.75	5236.	4084.	3025.	112.	-5475.	-322.
277.50	6895.	4565.	3451.	240.	-7218.	-338.
266.25	8421.	5597.	3674.	169.	-8261.	-27.
255.00	6942.	5508.	3535.	116.	-7900.	114.
243.75	5226.	4321.	3005.	-58.	-7504.	57.
232.50	5373.	3570.	2157.	-486.	-8155.	131.
221.25	4915.	3152.	1316.	-954.	-8339.	216.
210.00	3036.	2230.	705.	-1257.	-7005.	138.
198.75	1196.	1040.	32.	-1411.	-5755.	123.
187.50	-1187.	-333.	-896.	-1359.	-5504.	239.
176.25	-4062.	-2005.	-1638.	-1046.	-4932.	233.
165.00	-4925.	-2992.	-1778.	-691.	-3603.	138.
153.75	-3784.	-2607.	-1423.	-460.	-2786.	194.
142.50	-3166.	-1806.	-823.	-201.	-2998.	234.
131.25	-2929.	-1330.	-156.	139.	-3625.	-5.
120.00	-1551.	-653.	429.	344.	-4280.	-281.
108.75	-236.	347.	950.	424.	-4844.	-326.
97.50	-540.	865.	1408.	579.	-5196.	-352.
86.25	-1229.	666.	1512.	691.	-5500.	-442.
75.00	-1191.	293.	1052.	565.	-5785.	-334.
63.75	-1908.	-240.	304.	382.	-5313.	-161.
52.50	-3901.	-1297.	-351.	256.	-3516.	-242.
41.25	-4781.	-2293.	-873.	-49.	-1336.	-269.
30.00	-4007.	-2474.	-1400.	-504.	-175.	25.
18.75	-4446.	-2588.	-1911.	-720.	303.	134.
7.50	-8390.	-3468.	-2249.	-673.	1308.	-148.
356.25	-6060.	-4117.	-2323.	-660.	2248.	-268.
345.00	-4763.	-3512.	-2031.	-680.	1567.	-178.
333.75	-2395.	-2112.	-1144.	-612.	-422.	-340.
322.50	380.	-173.	292.	-574.	-2167.	-504.
311.25	4457.	2245.	1670.	-536.	-3211.	-282.

PUN 25 PUNT 5 OMEG#R = 593.8 ALFS,C = 8.3 CLR/S,R = 0.10721 CMY/S,R = 0.1998
 VKTS = 105.3 RHJ100 = 0.2277 CP/S = 0.001613 CDR/S,R = 0.01670 CMX/S,R = -0.0103
 V/CP = 0.299

UPPER ROTOR BLADE NORMAL BENDING MUMENT

HAFMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-146.3		1670.6		-71.0		-947.8	
1	914.8	1356.6	837.3	600.4	735.3	167.2	1465.5	-1608.4
2	-147.4	-914.9	-119.1	-611.7	-146.0	-381.6	-836.9	-675.4
3	39.3	190.9	34.9	130.3	29.1	90.2	-27.7	276.8
4	352.5	-452.0	269.8	-203.7	118.4	-98.8	-266.8	440.4
5	-543.4	312.3	-300.5	81.7	-97.1	17.7	409.5	-212.3
6	4.8	-449.4	72.2	-270.9	5.9	-128.8	104.9	298.8
7	82.2	309.9	27.1	50.8	24.3	-75.2	-37.0	-79.3
8	-299.8	-63.5	-120.4	-47.7	-0.3	26.9	158.9	13.9
9	213.5	-499.3	191.0	-167.0	-17.9	-7.0	-83.9	337.7
10	-123.5	87.9	-36.3	1.7	43.0	-14.9	106.5	39.9

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HAFMONIC

0	-5086.8	
1	1866.4	836.6
2	-665.2	746.0
3	-6.7	8.3
4	-90.3	38.5
5	74.1	-79.9
6	2.5	-21.8
7	495.5	-597.4
8	-40.7	31.8
9	-72.5	37.0
10	-0.5	-12.4

UPPER ROTOR PITCH LINK LOAD

	COS	SIN
	-246.0	
	-44.4	242.6
	7.0	34.0
	-74.1	21.9
	-44.8	-35.2
	27.2	-98.8
	27.7	26.8
	-22.4	99.8
	-23.8	61.0
	16.1	21.0
	9.1	-26.8

UPPER ROTOR SHAFT STRESS

	COS	SIN
	1523.0	
	-1642.4	-1541.6
	-554.3	-467.4
	320.6	-390.4
	-24.1	341.5
	77.7	-559.6
	-40.6	72.6
	-303.7	-407.0
	68.9	149.8
	10.6	-47.1
	-16.9	35.0

RUN 25 POINT 5 OMEG*R = 593.8 ALFS,C = 8.3 CLR/S,R = 0.10721 CMY/S,R = 0.1998
 VKTS = 105.3 RHO100 = 0.2277 CP/S = 0.001613 CDR/S,R = 0.01670 CMX/S,R = -0.0103
 V/CR = 0.299

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	2042.2		1724.7		1337.5		-155.5	
1	-434.2	-2487.2	-293.8	-1418.2	-55.8	-641.5	138.9	277.4
2	-1109.5	632.7	-786.9	541.9	-680.9	332.8	-296.7	63.2
3	54.9	-196.9	13.8	-112.2	26.1	-51.6	20.2	-3.7
4	259.5	537.3	270.4	252.1	117.3	145.5	-72.4	-85.7
5	-254.8	105.5	-103.8	141.1	-56.0	87.5	29.1	-14.9
6	-78.8	645.9	136.6	356.4	20.9	185.5	3.3	-66.6
7	231.9	99.2	152.3	-32.2	79.1	-21.9	-23.4	-4.3
8	-82.4	-228.7	-87.5	-52.6	-2.7	-3.7	12.0	18.9
9	-28.8	52.3	-0.3	-1.2	-3.9	-27.5	6.8	-1.6
10	37.4	107.5	49.4	8.7	6.5	-2.2	-7.5	-8.6

229 LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

	COS	SIN
0	-5242.0	
1	2711.7	299.6
2	575.6	-865.3
3	154.4	108.7
4	-12.9	33.1
5	18.1	80.5
6	-94.4	-85.2
7	673.5	1019.6
8	-19.6	9.3
9	10.7	3.4
10	0.3	10.4

LOWER ROTOR PITCH LINK LOAD

	COS	SIN
	-8.6	
	-185.8	155.0
	-21.6	50.2
	-17.3	-44.9
	-5.8	-10.2
	26.1	-7.1
	52.5	23.9
	10.5	-15.0
	-11.3	19.7
	15.6	19.5
	24.2	10.7

FUN 25		PCINT 5		UMEG#R = 593.8		ALFS,C = 0.3		CLR/S,R = 0.10721		C4V/S,R = 0.1998	
VMTS = 105.3		RHU100 = 0.2277		CP/S = 0.001613		CDR/S,R = 0.01670		C4X/S,R = -0.0103			
V/CP =											
		UPPER ROTOR		BLADE NORMAL		BENDING MOMENT		UR EDGEWISE		UPPER ROTOR	
		.1R		.2R		.3R		BENDING .1R		SHAFT STRESS	

RUN 25 POINT 5
 VKTS = 105.3 OMEG*R = 593.8 ALFS,C = 8.3 CLR/S,R = 0.10721 CMY/S,R = 0.1998
 V/CR = 0.299 RHO100 = 0.2277 CP/S = 0.001613 COR/S,R = 0.01670 CNX/S,R = -0.0103

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING .LR		LR PITCH LINK LOAD	
	.1R	.2R	.3R	.6R			
300.00	4499.	3183.	2089.	-327.	-4365.	-209.	
288.75	4108.	3141.	2106.	-195.	-5707.	-158.	
277.50	4481.	3189.	2332.	-129.	-5313.	-272.	
266.25	6212.	3965.	2750.	-225.	-5126.	-281.	
255.00	6857.	4682.	2934.	-272.	-6748.	-72.	
243.75	5275.	4216.	2653.	-151.	-8723.	57.	
232.50	3850.	3142.	2148.	-103.	-8743.	34.	
221.25	4051.	2717.	1799.	-290.	-7353.	51.	
210.00	4504.	2883.	1700.	-550.	-7116.	133.	
198.75	3975.	2817.	1595.	-726.	-8538.	201.	
187.50	2613.	2183.	1203.	-753.	-9225.	218.	
176.25	1051.	1201.	616.	-638.	-7630.	151.	
165.00	-77.	373.	238.	-459.	-5596.	91.	
153.75	-630.	7.	236.	-290.	-5624.	130.	
142.50	-687.	-48.	380.	-130.	-6997.	174.	
131.25	-67.	158.	548.	-1.	-6986.	175.	
120.00	740.	699.	866.	82.	-5293.	191.	
108.75	901.	1169.	1273.	182.	-4447.	177.	
97.50	899.	1302.	1535.	302.	-5594.	132.	
86.25	1258.	1432.	1603.	370.	-6689.	170.	
75.00	1053.	1492.	1508.	415.	-5824.	232.	
63.75	51.	1044.	1225.	473.	-4109.	194.	
52.50	-476.	461.	918.	432.	-3733.	100.	
41.25	-56.	422.	851.	222.	-4451.	-46.	
30.00	725.	824.	983.	-62.	-4040.	-219.	
18.75	1357.	1223.	1062.	-292.	-2074.	-222.	
7.50	1193.	1308.	959.	-375.	-822.	-107.	
356.25	266.	887.	682.	-316.	-1694.	-166.	
345.00	-49.	377.	420.	-243.	-2933.	-308.	
333.75	956.	575.	555.	-251.	-2540.	-291.	
322.50	2551.	1546.	1189.	-309.	-1524.	-256.	
311.25	3966.	2620.	1847.	-358.	-2181.	-282.	

RUN 25
 VKTS =
 V/IR =

PUINT 6
 100.2
 0.302

CMGSR = 593.9
 RH0100 = 0.2272

ALFS.C = 8.0
 CP/S = 0.000632

CLR/S,R = 0.06654
 CDR/S,R = 0.01263

HARMONIC

HARMONIC	.1R	.2R	.3R	.6R
	COS	SIN	COS	SIN
0	-351.4	-1596.7	-163.8	-1076.5
1	-2935.8	-217.1	-1039.3	-66.8
2	-923.5	33.5	-548.1	-1776.6
3	269.6	-542.1	61.1	-294.7
4	720.6	238.2	246.9	-691.0
5	117.0	-116.2	25.9	-77.6
6	-142.8	-5.3	-49.3	137.7
7	32.2	124.8	8.7	10.6
8	-244.4	52.9	-2.7	142.6
9	-230.9	3.0	-4.5	147.1
10	-47.5		3.7	39.3

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UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC

HARMONIC	COS	SIN
0	-5368.0	493.1
1	2027.3	509.7
2	1162.8	-83.9
3	-15.0	-5.6
4	24.5	-116.2
5	4.8	-5.5
6	-1.1	-388.4
7	498.7	3.8
8	-0.7	47.5
9	0.1	10.1
10	21.8	

UPPER ROTOR PITCH LINK LOAD

	COS	SIN
	-236.5	353.6
	-90.8	-13.4
	22.8	84.1
	-66.1	0.3
	17.1	-21.9
	-72.1	-9.9
	-32.4	5.6
	-66.3	66.8
	23.8	-4.3
	-44.1	5.7
	-4.5	

UPPER ROTOR SHAFT STRESS

	COS	SIN
	1074.0	-17.6
	-5660.9	-411.1
	-694.7	-80.1
	398.8	378.5
	-283.2	-266.4
	-407.9	-21.2
	-74.2	-245.5
	-256.5	146.5
	18.6	9.2
	74.9	35.7
	-59.1	

RUN 25 PGINT 6
 VKTS = 106.2 OMEG#R = 593.9 ALFS,C = 8.0 CLR/S,R = 0.06654 CMY/S,R = 0.13B5
 V/OR = 0.302 RHO100 = 0.2272 CP/S = 0.000632 CDR/S,R = 0.01263 CMX/S,R = 0.0028

LOWER ROTOR BLADE NGRMAL BENDING MOMENT

HAPMONIC	.1R		.2R		.3R		.6K	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	-7023.9	1902.3	-4716.4	1557.2	-3114.9	1372.6	-766.7	507.9
1	109.3	960.7	366.1	648.0	360.2	380.7	182.9	37.5
2	-414.6	80.8	-215.9	37.2	-201.7	27.8	-60.2	-46.9
3	131.2	348.3	120.6	222.5	90.1	109.8	68.6	-68.9
4	-157.5	-517.5	18.5	-253.5	27.6	-123.2	15.2	62.6
5	-112.3	420.2	-179.6	290.6	-62.4	132.5	19.8	-45.3
6	-287.1	92.0	-37.1	31.6	-46.2	46.1	-15.2	-7.1
7	160.5	-76.6	88.3	-9.2	34.3	14.5	7.1	4.5
8	-25.4	146.2	-23.2	57.5	5.3	-7.2	10.6	-17.6
9	-64.1	63.6	35.1	24.6	9.9	23.9	2.8	-11.5
10	24.4		27.9		-12.0			

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LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	LOWER ROTOR PITCH LINK LOAD	
	COS	SIN
0	-4568.5	-162.1
1	463.4	-117.1
2	51.5	24.0
3	-8.3	-17.9
4	-25.8	-1.8
5	10.7	-19.9
6	-1.9	24.6
7	-777.2	36.8
8	-15.5	-11.1
9	5.2	5.9
10	-6.3	32.6

RUN 25 POINT 6 OMEG*R = 593.9 ALFS,C = 8.0 CLR/S,R = 0.06654 CMY/S,R = 0.1385
 VKTS = 106.2 RHU100 = 0.2272 CP/S = 0.000632 CDR/S,R = 0.01263 CMX/S,R = 0.0028
 V/C R = 0.302

PSI	UPPER ROTOR			UR EDGEWISE		UR PITCH		UPPER ROTOR	
	.1K	.2R	.3R	BENDING	.1K	LINK	LOAD	SHAFT	STRESS
0.00	-3737.	-438.	-1461.	-3506.	-1645.	-549.	-549.	-5870.	
11.25	-3765.	-800.	-1855.	-3585.	-2392.	-246.	-246.	-5517.	
22.50	-4258.	-1117.	-2151.	-3060.	-2974.	-21.	-21.	-4472.	
33.75	-5394.	-1624.	-2209.	-1925.	-2599.	12.	12.	-3386.	
45.00	-5137.	-1677.	-2063.	-1635.	-2395.	46.	46.	-2804.	
56.25	-3427.	-1031.	-1817.	-2411.	-3500.	97.	97.	-2772.	
67.50	-2105.	-182.	-1464.	-3142.	-5087.	-9.	-9.	-2218.	
78.75	-1235.	495.	-1054.	-3629.	-5743.	-65.	-65.	-429.	
90.00	-95.	1164.	-760.	-4055.	-5631.	56.	56.	1688.	
101.25	390.	1492.	-691.	-3819.	-5979.	125.	125.	3367.	
112.50	-337.	1147.	-804.	-2923.	-7004.	28.	28.	4885.	
123.75	-821.	764.	-870.	-2514.	-7567.	12.	12.	6024.	
135.00	39.	1162.	-623.	-3104.	-7032.	131.	131.	6154.	
146.25	1446.	2074.	-167.	-3948.	-6335.	116.	116.	5543.	
157.50	2242.	2679.	138.	-4257.	-6471.	-22.	-22.	4940.	
168.75	2205.	2809.	270.	-3865.	-6942.	15.	15.	4966.	
180.00	1759.	2795.	435.	-2943.	-6676.	130.	130.	5833.	
191.25	1409.	2781.	601.	-1712.	-5780.	-66.	-66.	6509.	
202.50	1447.	2836.	731.	-363.	-5458.	-455.	-455.	5884.	
213.75	1610.	3096.	987.	923.	-6317.	-585.	-585.	4902.	
225.00	2308.	3521.	1383.	1964.	-7341.	-501.	-501.	4847.	
236.25	2938.	4022.	1758.	2633.	-7249.	-542.	-542.	4811.	
247.50	3537.	4540.	2056.	3018.	-6553.	-637.	-637.	3704.	
258.75	3473.	4729.	2222.	3456.	-6691.	-556.	-556.	2356.	
270.00	2572.	4314.	2108.	4005.	-7424.	-419.	-419.	1586.	
281.25	1564.	3616.	1673.	4146.	-7252.	-442.	-442.	792.	
292.50	552.	2855.	989.	3696.	-6056.	-592.	-592.	-561.	
303.75	-1072.	1780.	219.	3023.	-5090.	-690.	-690.	-1959.	
315.00	-2476.	724.	-351.	1804.	-4805.	-595.	-595.	-2694.	
326.25	-2368.	450.	-607.	-485.	-4426.	-390.	-390.	-2970.	
337.50	-1934.	606.	-783.	-2722.	-3336.	-374.	-374.	-3718.	
348.75	-2776.	245.	-1080.	-3513.	-2027.	-559.	-559.	-5055.	

RUN 25
 VPTS =
 V/CR =

PUINT 6
 106.2
 0.302

OMEG#R = 593.9
 RHU100 = 0.2272

ALFS,C = 8.0
 CP/S = 0.000632

CLR/S,R = 0.06654
 CDR/S,R = 0.01263

CMV/S,R ± 0.1385
 CMX/S,R ± 0.0028

PSI	LOWER ROTOR BLADE NORMAL			BENDING MUMENT		LR EDGEWISE		LR PITCH	
	.1R	.2R	.3R	.6R	.1R	BENDING	LINK LOAD		
300.00	-9597.	-6610.	-4567.	-1199.	-4078.	-316.			
288.75	-9493.	-6612.	-4595.	-1237.	-3092.	-325.			
277.50	-8767.	-6235.	-4256.	-1266.	-1948.	-423.			
266.25	-7475.	-5555.	-3907.	-1333.	-2888.	-338.			
255.00	-7206.	-5198.	-3946.	-1276.	-4835.	-151.			
243.75	-8427.	-5660.	-4193.	-1073.	-4964.	-175.			
232.50	-8957.	-6201.	-4263.	-976.	-3533.	-278.			
221.25	-7671.	-5879.	-4093.	-1097.	-3234.	-222.			
210.00	-6330.	-5042.	-3773.	-1262.	-4858.	-84.			
198.75	-6424.	-4653.	-3516.	-1298.	-6100.	48.			
187.50	-7441.	-4980.	-3596.	-1178.	-5285.	91.			
176.25	-8358.	-5557.	-3842.	-982.	-3918.	-35.			
165.00	-8569.	-5808.	-3795.	-815.	-4286.	-120.			
153.75	-7855.	-5500.	-3430.	-720.	-5934.	-20.			
142.50	-6583.	-4774.	-2973.	-671.	-6388.	18.			
131.25	-5550.	-3935.	-2462.	-610.	-5077.	-54.			
120.00	-5270.	-3383.	-2028.	-470.	-4336.	-24.			
108.75	-5439.	-3300.	-1845.	-276.	-5590.	9.			
97.50	-5384.	-3322.	-1756.	-141.	-7135.	-80.			
86.25	-5061.	-3115.	-1598.	-90.	-6536.	-115.			
75.00	-4819.	-2887.	-1478.	-95.	-4889.	-77.			
63.75	-4544.	-2776.	-1443.	-184.	-4874.	-80.			
52.50	-4269.	-2667.	-1472.	-313.	-6449.	-60.			
41.25	-4490.	-2713.	-1623.	-383.	-6747.	-73.			
30.00	-5062.	-3019.	-1828.	-434.	-4959.	-218.			
18.75	-5222.	-3360.	-2041.	-522.	-3532.	276.			
7.50	-6669.	-3899.	-2476.	-538.	-4114.	-193.			
356.25	-8105.	-4860.	-3131.	-517.	-5054.	-245.			
345.00	-3707.	-5629.	-3626.	-641.	-4238.	-368.			
333.75	-8517.	-5745.	-3836.	-854.	-2373.	-339.			
322.50	-3754.	-5812.	-4006.	-992.	-1854.	-311.			
311.25	-9351.	-6243.	-4285.	-1094.	-3163.	-551.			

RUN 25
VKTS =
V/DR =

PGINT 7
104.7
0.300

UMEG#R = 590.0
RHU100 = 0.2269

ALFS,C = 8.3
CP/S = 0.002266

CLK/S,R = 0.10581
CDR/S,R = 0.01620

CMY/S,R = 0.1970
CMX/S,R = -0.0051

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	-1R		-2R		-3R		-6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1460.1	129.8	2843.5	-281.1	774.4	-476.0	-230.9	-2463.6
1	615.0	-1379.5	740.1	-1034.7	695.3	-668.2	1529.0	-1288.9
2	-1430.6	83.9	-1020.9	49.0	-785.9	29.2	-2334.1	-1.1
3	-120.7	-458.7	-63.8	-225.7	-32.7	-129.8	-167.4	379.8
4	300.6	292.7	246.0	141.2	94.3	31.6	-332.1	-196.3
5	-258.6	-459.2	-159.5	-258.6	-24.7	-128.2	97.3	327.6
6	158.6	193.4	160.1	27.8	47.0	-67.2	6.7	-41.9
7	48.8	-166.2	59.2	-99.2	50.7	37.5	-59.2	56.5
8	-339.7	-202.1	-118.2	-14.8	-6.9	-11.8	222.9	152.0
9	335.7	70.5	174.7	10.0	-0.8	29.2	-172.8	11.5
10	-212.5		-70.7		40.9		63.3	

UPPER ROTOR EDGEWISE BENDING MOMENT -1R

UPPER ROTOR PITCH LINK LOAD

UPPER ROTOR SHAFT STRESS

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HARMONIC

HARMONIC	UPPER ROTOR EDGEWISE BENDING MOMENT -1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	-5010.9		-227.9	273.7	1738.8	158.0
1	2953.2	-36.1	-162.2	29.7	-3460.3	-539.1
2	504.6	2078.8	144.6	-8.0	-788.6	-37.1
3	292.8	70.1	-117.8	1.0	209.2	581.8
4	12.1	61.7	59.9	-98.8	-276.0	-234.1
5	79.0	-295.1	-51.3	-24.9	-76.1	11.6
6	-93.0	17.4	15.5	-32.1	79.5	-542.7
7	785.9	-128.4	-100.5	15.2	-200.2	241.2
8	-98.9	25.6	-0.7	-26.1	-21.9	-18.7
9	-42.4	73.2	2.3	25.6	-4.1	-21.1
10	35.0		70.4		-92.8	

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PUN 25 POINT 7
VPTS = 104.7
V/CR = 0.300
OMLG*P = 590.0
RNDUCC = 0.2269
ALFS,C = 8.3
CP/S = 0.002266
CLR/S,R = 0.10581
CDR/S,R = 0.01620
CMY/S,R = 0.1970
CMX/S,R = -0.0051

HARMONIC	LOWER ROTOR BLADE NORMAL BENDING MOMENT			.6R		
	.1P	.2R	.3R	COS	SIN	
0	COS	COS	COS	475.6	762.4	-260.4
1	252.1	468.3	-550.1	-982.8	647.7	81.3
2	-1735.1	-982.8	-724.9	-833.2	409.8	-323.4
3	-1139.0	-833.2	28.7	8.6	-125.0	28.5
4	37.1	8.6	139.8	309.5	372.6	-69.2
5	206.1	309.5	-7.7	-40.8	52.3	3.3
6	-138.7	-40.8	101.2	285.1	290.9	-30.5
7	193.4	285.1	48.8	115.5	-27.9	-28.1
8	235.0	115.5	12.5	-69.9	20.6	14.5
9	-165.7	-69.9	-27.4	55.5	24.0	-12.6
10	36.5	55.5	-3.9	17.8	26.8	-4.2
	-3.2	17.8				

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1P			LOWER ROTOR PITCH LINK LOAD		
	COS	SIN		COS	SIN	
0	-5122.2			-39.2	161.2	
1	2400.4	-317.5		-182.5	34.4	
2	967.0	-886.8		-18.2	-53.1	
3	32.5	125.0		-17.0	-0.5	
4	-13.2	-22.7		-2.6	-14.5	
5	-64.6	163.1		21.2	14.2	
6	-95.2	-27.0		57.9	-5.0	
7	212.2	111.2		7.1	20.2	
8	-50.8	-19.1		-14.5	-23.3	
9	-41.5	-44.0		0.3	8.1	
10	45.2	34.4		40.6		

PLINT	7	CMEG*P = 590.0	ALFS,C = 8.3	CLK/S,R = 0.10581	CMY/S,R = 0.1970
104.7		CP/S = 0.002266		CUR/S,R = 0.01620	CMX/S,R = -0.0051
0.300					
UPPER PICK BLADE NORMAL BENDING MOMENT					
.1P	.2R	.3P	.6R	UP. EDGEWISE BENDING .1P	UP. PITCH LINK LOAD
					UPPER MOTOR SHAFT STRESS
351	557.	852.	-1357.	-583.	-368.
0.00	-275.	239.	-1606.	-647.	-441.
11.25	-168.	-104.	-2150.	-1163.	-280.
22.50	240.	109.	-2281.	-832.	17.
33.75	609.	431.	-1781.	-324.	-11.
45.00	1174.	555.	-1374.	-1213.	-114.
56.25	2184.	685.	-1269.	-3344.	41.
67.50	2931.	897.	-970.	-5172.	22.
78.75	2349.	1142.	-561.	-5834.	-210.
90.00	3217.	1317.	-682.	-6126.	-155.
101.25	4045.	1085.	-970.	-7377.	-2.
112.50	2767.	543.	-563.	-9064.	-57.
123.75	359.	317.	-504.	-9236.	-42.
135.00	912.	366.	-2355.	-8361.	1.
146.25	2918.	136.	-4585.	-8394.	-84.
157.50	1874.	-260.	-4770.	-9234.	114.
168.75	-684.	-524.	-3811.	-8720.	491.
180.00	-1495.	-807.	-3406.	-6627.	351.
191.25	-1797.	-996.	-2802.	-4881.	-119.
202.50	-2093.	-724.	-1573.	-4776.	-320.
213.75	-669.	-106.	-781.	-5650.	-406.
225.00	1167.	572.	-38.	-5713.	-555.
236.25	1580.	1205.	1654.	-4538.	-610.
247.50	1581.	1647.	3400.	-4047.	-626.
258.75	2962.	1978.	4369.	-5255.	-588.
270.00	3280.	2399.	5132.	-6333.	-434.
281.25	3284.	2622.	5626.	-5980.	-504.
292.50	3444.	2386.	5281.	-5334.	-779.
303.75	2980.	2051.	4362.	-5217.	-695.
315.00	2370.	1854.	2935.	-4863.	-355.
326.25	2352.	1617.	865.	-3618.	-260.
337.50	1267.	1298.	-823.	-1833.	-316.
348.75					

CHV/S,R = 0.1970
CHX/S,R = -0.0051

CLR/S,R = 0.10581
CDR/S,R = 0.01620

ALFS,C = 8.3
CP/S = 0.002266

OMEGAR = 590.0
RHO100 = 0.2269

POINT 7
104.7
0.300

RUN 25
VKTS =
V/OR =

PSI	LOWER ROTOR BLADE NORMAL BENDING MOMENT			LR EDGEWISE BENDING		LR PITCH LINK LOAD
	.1R	.2R	.3R	.6R	.1R	
300.00	219.	5.	-75.	-678.	-4155.	-233.
288.75	104.	175.	-40.	-601.	-5176.	-205.
277.50	-102.	144.	166.	-454.	-4805.	-293.
266.25	954.	566.	558.	-417.	-4878.	-297.
255.00	2145.	1233.	732.	-454.	-6581.	-147.
243.75	1624.	1265.	605.	-405.	-8219.	-45.
232.50	448.	669.	424.	-357.	-7741.	-3.
221.25	843.	431.	332.	-511.	-6430.	43.
210.00	2406.	993.	407.	-800.	-6773.	64.
198.75	2913.	1620.	626.	-965.	-8103.	142.
187.50	1797.	1484.	674.	-887.	-7948.	238.
176.25	491.	767.	393.	-666.	-6159.	141.
165.00	-146.	214.	163.	-424.	-4904.	17.
153.75	-358.	101.	346.	-189.	-5579.	106.
142.50	177.	397.	804.	1.	-7030.	167.
131.25	1663.	1163.	1278.	87.	-7014.	105.
120.00	2707.	2024.	1702.	152.	-5629.	184.
108.75	2440.	2330.	2011.	301.	-5412.	258.
97.50	2027.	2189.	2113.	450.	-6905.	109.
86.25	1976.	2094.	2044.	512.	-7490.	62.
75.00	1340.	1895.	1860.	543.	-6047.	219.
63.75	211.	1299.	1478.	533.	-4726.	204.
52.50	-622.	519.	873.	398.	-4931.	14.
41.25	-1190.	-138.	320.	170.	-5161.	-107.
30.00	-1249.	-409.	116.	-109.	-3797.	-209.
18.75	-681.	-208.	103.	-433.	-1727.	-265.
7.50	-1011.	-194.	-147.	-628.	-1110.	-180.
356.25	-2855.	-1027.	-715.	-551.	-2162.	-164.
345.00	-4106.	-2071.	-1245.	-401.	-2718.	-290.
333.75	-3456.	-2268.	-1357.	-407.	-1691.	-326.
322.50	-1996.	-1597.	-957.	-518.	-883.	-283.
311.25	-647.	-677.	-373.	-625.	-2029.	-279.

RUN 25 POINT 8 OMEG*R = 591.9 ALFS,C = 8.4 CLR/S,R = 0.11600 CMY/S,R = 0.2138
 VKTS = 104.8 RHO100 = 0.2265 CP/S = 0.001886 CDR/S,R = 0.01780 CMX/S,R = -0.0055
 V/OR = 0.299

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	2216.0	2872.6	3375.1	1696.0	1115.1	883.3	-25.6	-1187.8
1	968.4	-1408.9	881.2	-1021.6	818.3	-673.2	1751.2	-1259.8
2	-676.0	153.3	-513.3	97.7	-431.2	58.4	-1578.1	31.4
3	-49.9	-251.6	-38.3	-109.3	-20.3	-78.3	-207.9	249.9
4	371.6	228.2	260.2	35.1	105.5	-3.7	-408.7	-126.4
5	-484.0	-383.8	-259.8	-212.6	-64.6	-117.7	316.0	285.0
6	189.5	279.7	163.9	68.9	52.4	-50.4	-31.1	-60.0
7	-24.7	-124.6	49.4	-80.0	67.0	25.0	-56.2	48.9
8	-234.8	-106.4	-87.7	26.6	4.0	-9.6	138.2	113.3
9	337.2	-50.9	155.9	-25.3	-13.7	23.5	-191.4	101.1
10	-121.1		-28.6		18.0		26.1	

240 UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	-5088.1	240.3	-274.2	281.0	1866.1	-775.1
1	2873.5	1223.6	-148.6	61.1	-1388.4	-442.8
2	-458.2	115.3	98.4	-43.6	-438.3	-160.7
3	148.0	54.3	-136.9	33.2	231.3	206.7
4	3.7	-109.8	28.3	-150.6	-375.8	-553.9
5	127.0	-25.6	8.0	-25.6	-45.6	86.4
6	-43.0	68.2	-2.9	13.7	48.9	-655.0
7	891.0	25.7	-20.9	56.0	-0.8	156.9
8	-67.0	-29.6	-7.6	-13.8	35.2	-25.4
9	-17.5	10.2	32.9	-7.9	-50.0	-7.2
10	-8.0		2.4		-13.7	

PUN 25 POINT 8
 VKTS = 104.8 OMEG*R = 591.9 ALFS,C = 8.4 CLR/S,R = 0.11600 CMY/S,R = 0.2138
 V/OR = 0.299 RHQ100 = 0.2265 CP/S = 0.001886 CDK/S,R = 0.01780 CMX/S,R = -0.0055

LOWER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	1142.6	-3386.3	1091.7	-2057.4	893.3	-1111.0	-211.9	169.2
1	-1088.0	616.0	-776.1	430.6	-351.6	277.7	120.3	60.1
2	-258.6	-244.8	-180.6	-152.9	-215.0	-83.7	-142.3	-21.8
3	59.9	518.5	24.6	223.7	41.2	109.4	31.0	-84.0
4	244.0	-106.9	270.0	44.4	131.2	22.5	-57.0	12.5
5	-373.8	585.3	-218.5	210.3	-86.3	138.7	49.5	-53.7
6	314.7	-80.2	317.7	-128.8	129.5	-44.3	-41.5	17.4
7	296.8	-35.5	117.7	18.6	69.7	5.2	-30.6	4.0
8	-117.3	230.1	-42.7	-7.0	0.5	-12.4	8.2	-14.0
9	236.4	57.0	112.2	3.2	-34.0	4.6	-24.8	15.9
10	46.5		32.1		0.2		-10.1	

LOWER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	COS	SIN
----------	-----	-----

0	-5190.1	-366.9
1	2249.7	-253.0
2	-209.6	74.9
3	2.5	-30.3
4	-24.1	59.6
5	84.7	-2.6
6	-91.7	772.7
7	438.0	10.5
8	-82.7	-23.9
9	-60.4	-6.6
10	-1.3	

LOWER ROTOR PITCH LINK LOAD

COS	SIN
-----	-----

-51.4	145.1
-157.9	31.2
19.5	-26.8
-28.0	7.2
-2.7	-18.5
0.1	-8.8
54.4	-29.0
14.4	29.9
-0.2	-31.0
25.1	-14.4
16.7	

PGINT	8	OMEGA R =	591.9	ALFS,C =	8.4	CLR/S,R = 0.11603	CMY/S,R = 0.2136
104.8		RHJ100 =	0.2265	CP/S =	0.001886	CDR/S,R = 0.01780	CMX/S,R = -0.0055
0.299							
UPPER ROTOR	BLADE	NORMAL	BENDING	MOMENT	UR EDGEWISE	UR PITCH	UPPER ROTOR
.1R	.2R	.3R	.6R	BENDING .1R	LINK LOAD	SHAFT STRESS	
PSI							
0.00	2492.	3958.	1650.	-267.	-1639.	-421.	-131.
11.25	2304.	3566.	1338.	-215.	-1757.	-454.	-1127.
22.50	2813.	3537.	1199.	-749.	-2425.	-398.	-872.
33.75	3356.	3986.	1477.	-1058.	-2161.	-206.	144.
45.00	3522.	4386.	1855.	-541.	-1185.	18.	767.
56.25	3899.	4546.	1977.	-102.	-1241.	146.	452.
67.50	4712.	4785.	1978.	-34.	-2891.	93.	-80.
78.75	5298.	5171.	2126.	130.	-4495.	-95.	295.
90.00	5522.	5517.	2447.	115.	-4725.	-205.	1390.
101.25	6236.	5914.	2679.	-343.	-4660.	-134.	2365.
112.50	6972.	6168.	2469.	-511.	-5955.	-47.	2363.
123.75	5680.	5481.	1930.	75.	-7951.	-74.	3242.
135.00	3108.	4096.	1567.	373.	-8613.	-129.	4138.
146.25	2752.	3578.	1404.	-913.	-7921.	-130.	3408.
157.50	4235.	4047.	1060.	-3020.	-7925.	-118.	1468.
168.75	3653.	3767.	557.	-3908.	-9172.	-67.	830.
180.00	998.	2381.	77.	-3491.	-9683.	110.	2376.
191.25	-844.	1215.	-479.	-3174.	-8251.	267.	3980.
202.50	-1930.	543.	-995.	-2825.	-6405.	132.	3783.
213.75	-2918.	-53.	-1123.	-1885.	-6009.	-224.	2769.
225.00	-2455.	0.	-892.	-1303.	-6614.	-481.	2714.
236.25	-1066.	874.	-513.	-1148.	-6407.	-616.	3405.
247.50	-718.	1567.	-41.	-90.	-5004.	-771.	3504.
258.75	-606.	1841.	395.	1499.	-4023.	-765.	2869.
270.00	399.	2334.	723.	2459.	-4560.	-498.	2467.
281.25	1009.	2912.	1100.	3375.	-5417.	-378.	2697.
292.50	942.	3166.	1458.	4429.	-5083.	-621.	2876.
303.75	1482.	3361.	1556.	4433.	-4191.	-803.	2330.
315.00	2264.	3627.	1524.	3558.	-4223.	-649.	1489.
326.25	2440.	3756.	1616.	2706.	-4845.	-447.	1305.
337.50	2580.	3890.	1761.	1489.	-4482.	-403.	1604.
348.75	2780.	4086.	1802.	119.	-2909.	-408.	1196.

RUN 25 POINT 8
 VKTS = 104.8
 V/CR = 0.299

OMEGAR = 591.9
 RHDL00 = 0.2265

ALFS,C = 8.4
 CP/S = 0.001886

CLR/S,R = 0.11600
 CDR/S,R = 0.01780

CMV/S,R = 0.2138
 CMX/S,R = -0.0055

LOWER ROTOR BLADE NORMAL BENDING MOMENT
 .1R .2R .3R .6R

LR EDGEWISE
 BENDING .1R

LR PITCH
 LINK LOAD

PSI	3526.	2534.	1747.	-373.	-3801.	-258.
300.00	3646.	2654.	1691.	-330.	-4539.	-219.
288.75	3580.	2665.	1791.	-245.	-4111.	-232.
277.50	4608.	3114.	2259.	-261.	-3878.	-318.
266.25	6204.	4009.	2631.	-353.	-5117.	-239.
255.00	5898.	4265.	2535.	-293.	-6767.	-40.
243.75	3960.	3400.	2160.	-121.	-7011.	-2.
232.50	3404.	2588.	1859.	-141.	-6252.	-72.
221.25	4679.	2807.	1801.	-403.	-6454.	1.
210.00	5141.	3320.	1868.	-644.	-7911.	182.
198.75	3638.	2968.	1684.	-674.	-8751.	243.
187.50	1599.	1797.	1054.	-550.	-7870.	139.
176.25	1.	598.	344.	-392.	-6573.	63.
165.00	-1307.	-260.	-6.	-253.	-6559.	108.
153.75	-1804.	-716.	-47.	-171.	-7439.	123.
142.50	-1092.	-602.	-12.	-182.	-7411.	71.
131.25	-535.	-179.	89.	-199.	-6089.	113.
120.00	-1139.	-125.	227.	-97.	-5188.	177.
108.75	-1759.	-444.	225.	48.	-5723.	84.
97.50	-1752.	-620.	91.	123.	-6176.	-5.
86.25	-2022.	-710.	20.	178.	-5074.	64.
75.00	-2352.	-908.	15.	210.	-3694.	107.
63.75	-1914.	-902.	-64.	119.	-3869.	48.
52.50	-1510.	-684.	-127.	-14.	-4745.	-14.
41.25	-1434.	-539.	34.	-79.	-4345.	-134.
30.00	-487.	-154.	354.	-181.	-2957.	-260.
18.75	637.	540.	565.	-312.	-2448.	-193.
7.50	186.	702.	554.	-273.	-3206.	-99.
356.25	-563.	255.	443.	-134.	-3811.	-227.
345.00	411.	311.	479.	-149.	-3292.	-346.
333.75	2089.	1181.	870.	-279.	-2427.	-277.
322.50	3028.	2068.	1451.	-356.	-2598.	-234.

RUN 25 PUNT 9 QMEGR = 597.7 ALFS+C = 8.6 CLR/S,R = 0.13770 CMY/S,R = 0.2565
 VKTS = 104.3 RHJ100 = 0.2265 CP/S = 0.001653 CDK/S,R = 0.02220 CMX/S,R = -0.0028
 V/OR = J.295

UPPER ROTOR BLADE NORMAL BENDING MOMENT

HARMONIC	.1R		.2R		.3R		.6R	
	COS	SIN	COS	SIN	COS	SIN	COS	SIN
0	4676.6		5134.9		2231.5		678.3	
1	1253.2	10451.8	699.2	7108.8	703.1	4580.6	1424.8	2294.3
2	471.5	-979.0	233.3	-657.0	125.0	-475.3	-414.3	550.9
3	144.4	239.0	39.7	155.3	3.3	80.9	-371.5	165.9
4	467.4	-350.7	326.2	-123.1	114.6	-83.1	-538.8	488.6
5	-373.4	533.6	-251.8	229.6	-73.0	78.2	240.3	374.4
6	-186.6	-275.7	-73.8	-209.4	-77.7	-91.6	236.8	128.7
7	71.1	206.3	44.8	24.9	38.7	-71.7	2.1	-36.4
8	-134.2	130.6	-63.5	43.3	20.2	-5.9	30.1	-89.1
9	65.8	-76.6	66.4	-27.2	14.0	-5.8	-12.0	71.0
10	-66.9	26.5	-21.0	-12.5	17.0	-7.5	96.8	20.2

244

UPPER ROTOR EDGEWISE BENDING MOMENT .1R

HARMONIC	UPPER ROTOR BENDING MOMENT .1R		UPPER ROTOR PITCH LINK LOAD		UPPER ROTOR SHAFT STRESS	
	COS	SIN	COS	SIN	COS	SIN
0	-5526.3		-344.4		2232.2	
1	2691.1	561.1	-152.1	292.6	-540.3	882.6
2	-1315.9	-930.7	-21.1	75.4	-435.1	-2.3
3	-5.9	6.9	-90.0	-76.1	139.3	-148.9
4	-16.1	-27.7	7.5	14.7	-213.0	-96.9
5	57.8	-54.8	57.8	-124.9	31.8	-553.7
6	50.8	-27.4	43.2	34.4	-17.8	131.0
7	647.0	-659.0	-116.7	173.3	-219.7	-671.5
8	-108.5	-23.9	27.7	56.4	134.9	38.5
9	1.5	2.4	-32.6	-11.3	57.5	-50.7
10	30.1	16.6	5.4	0.7	-78.7	-15.0

RUN 25
VKTS =
V/OR =

POINT 9
104.3
0.295

OMEGA R = 597.7
RH0100 = 0.2265

ALFS,C = 8.6
CP/S = 0.001653

CLR/S,R = 0.13770
CDR/S,R = 0.02220

CMY/S,R = 0.2565
CMX/S,R = -0.0028

HARMONIC	LOWER ROTOR BLADE NORMAL BENDING MOMENT				.6R	
	.1R		.2R		COS	SIN
	COS	SIN	COS	SIN	COS	SIN
0	2842.6		2235.2		1659.0	
1	383.7	-10540.8	-249.8	-7172.3	67.5	-4613.1
2	902.4	883.7	702.9	507.5	483.3	365.6
3	139.5	-122.3	71.8	-107.7	63.1	-57.3
4	96.6	118.9	120.8	58.4	65.8	51.3
5	-259.9	-434.2	-217.1	-144.0	-78.8	-56.2
6	-164.5	634.3	77.5	365.7	-3.3	189.0
7	339.5	13.5	196.4	-113.7	98.6	-37.0
8	-123.1	-171.4	-82.9	-6.3	6.4	10.4
9	-263.4	112.3	-48.8	98.5	-1.0	-19.6
10	10.2	56.7	11.0	13.0	-13.9	2.1

HARMONIC	LOWER ROTOR EDGEWISE BENDING MOMENT .1R		LOWER ROTOR PITCH LINK LOAD	
	COS	SIN	COS	SIN
0	-5583.6		-69.9	
1	2242.0	61.9	-119.0	166.7
2	-1359.8	1088.0	75.6	19.4
3	-115.2	18.0	-25.4	30.4
4	-25.8	-42.9	0.8	-5.7
5	67.5	-2.2	-47.6	15.2
6	-25.8	-95.6	59.5	14.8
7	1156.1	-137.0	-24.2	-27.4
8	64.1	-16.4	-16.6	10.9
9	-9.2	-47.0	-9.3	-6.6
10	-4.4	6.0	-1.3	-6.7

PUN 25		PCINT	9	OMEGAR = 597.7	ALFS,C = 8.6	CLR/S,R = 0.13770	CMV/S,R = 0.2565
VKTS =		104.3		CP/S = 0.001653		CDR/S,R = 0.02220	CMX/S,R = -0.00028
V/CR =		0.295		RMJ100 = 0.2265			
UPPER ROTOR BLADE NORMAL BENDING MCMENT							
				.1R	.2R	.3R	.6R
PSI							
0.00	6389.	6134.	3117.	1373.	-3494.	-615.	1091.
11.25	8560.	7297.	3638.	1639.	-4939.	-355.	249.
22.50	10118.	8454.	4369.	2031.	-5342.	-392.	1005.
33.75	10864.	9371.	5178.	2989.	-4212.	-572.	2490.
45.00	11525.	9945.	5617.	3761.	-3273.	-362.	3164.
56.25	12396.	10371.	5765.	3887.	-3646.	181.	2852.
67.50	13314.	10910.	6056.	3590.	-4325.	393.	2802.
78.75	14302.	11655.	6559.	2865.	-4067.	61.	3535.
90.00	15255.	12390.	6946.	2112.	-3255.	-278.	3784.
101.25	15580.	12628.	6875.	2183.	-3308.	-230.	3031.
112.50	14526.	11960.	6324.	2964.	-4684.	-3.	2893.
123.75	12285.	10590.	5674.	3460.	-6024.	87.	4053.
135.00	10589.	9420.	5232.	2894.	-6149.	-65.	4695.
146.25	10485.	9011.	4802.	1225.	-6156.	-355.	3504.
157.50	10172.	8598.	4066.	-503.	-7634.	-457.	1612.
168.75	7119.	7148.	3001.	-1177.	-9705.	-194.	998.
180.00	4067.	4938.	1745.	-1195.	-10277.	52.	2154.
191.25	789.	2824.	470.	-1336.	-9371.	-78.	3309.
202.50	-1984.	953.	-641.	-1441.	-8902.	-267.	2720.
213.75	-3965.	-591.	-1514.	-1709.	-9566.	-193.	1523.
225.00	-4729.	-1375.	-2125.	-2586.	-9738.	-203.	1700.
236.25	-5147.	-1623.	-2431.	-3194.	-8058.	-591.	2480.
247.50	-5828.	-1938.	-2521.	-2839.	-5858.	-914.	2268.
258.75	-6042.	-2140.	-2510.	-2271.	-5238.	-740.	1658.
270.00	-5672.	-1872.	-2342.	-1611.	-5577.	-396.	1587.
281.25	-5370.	-1462.	-1991.	-271.	-4706.	-427.	1617.
292.50	-4820.	-1066.	-1539.	993.	-2854.	-768.	1383.
303.75	-3314.	-274.	-948.	1236.	-2240.	-905.	1037.
315.00	-1085.	991.	-176.	919.	-3315.	-667.	761.
326.25	1165.	2379.	678.	581.	-4217.	-451.	1123.
337.50	2988.	3716.	1577.	391.	-3743.	-569.	2094.
348.75	4519.	4974.	2459.	747.	-2967.	-750.	2255.
				UR EDGEWISE BENDING .1R	UR PITCH LINK LOAD	UPPER ROTOR SHAFT STRESS	

RUN 25
VKTS =
V/OR =

POINT 9
104.3
0.295

OMEGA R = 597.7
RHO100 = 0.2265

ALFS,C = 8.6
CP/S = 0.001653

CLR/S,R = 0.13770
CDR/S,R = 0.02220

CAY/S,R = 0.2565
CMX/S,R = -0.0028

PSI	LOWER ROTOR BLADE NORMAL			BENDING MOMENT		LR EDGEMISE BENDING .LR	LR PITCH LINK LOAD	
	.LR	.2R	.3R	.6R				
300.00	10867.	7591.	5066.	90.		-3986.		-245.
288.75	10546.	7609.	5084.	147.		-5196.		-297.
277.50	11259.	7809.	5470.	138.		-5153.		-382.
266.25	13636.	8923.	6027.	-32.		-3849.		-370.
255.00	14378.	9856.	6202.	-67.		-3600.		-219.
243.75	12025.	9167.	5852.	175.		-5157.		-61.
232.50	9847.	7641.	5252.	358.		-6673.		-92.
221.25	9837.	6955.	4771.	244.		-6734.		-209.
210.00	9910.	6986.	4524.	1.		-6390.		-177.
198.75	8287.	6423.	4099.	-176.		-7408.		36.
187.50	5429.	4778.	3029.	-250.		-9454.		235.
176.25	2099.	2548.	1553.	-247.		-10315.		261.
165.00	-976.	416.	290.	-256.		-9150.		160.
153.75	-3017.	-1184.	-616.	-363.		-7927.		92.
142.50	-4321.	-2334.	-1421.	-520.		-8368.		103.
131.25	-5783.	-3418.	-2213.	-636.		-9088.		113.
120.00	-7326.	-4462.	-2854.	-687.		-7827.		92.
108.75	-8310.	-5151.	-3224.	-684.		-5212.		56.
97.50	-8688.	-5443.	-3345.	-637.		-3840.		-7.
86.25	-8584.	-5513.	-3295.	-567.		-4249.		55.
75.00	-7718.	-5219.	-3047.	-505.		-4304.		12.
63.75	-6203.	-4385.	-2546.	-453.		-2794.		44.
52.50	-4748.	-3337.	-1863.	-363.		-1455.		20.
41.25	-3275.	-2336.	-1062.	-220.		-2276.		12.
30.00	-1021.	-1026.	-102.	-101.		-4300.		25.
18.75	1490.	685.	942.	-18.		-4965.		-17.
7.50	3102.	2144.	1862.	112.		-3991.		-130.
356.25	4386.	3114.	2554.	244.		-3721.		-187.
345.00	6308.	4114.	3096.	255.		-5255.		-201.
333.75	8089.	5266.	3678.	205.		-6520.		-255.
322.50	9180.	6248.	4386.	181.		-5592.		-297.
311.25	10257.	7059.	4941.	129.		-3927.		-270.

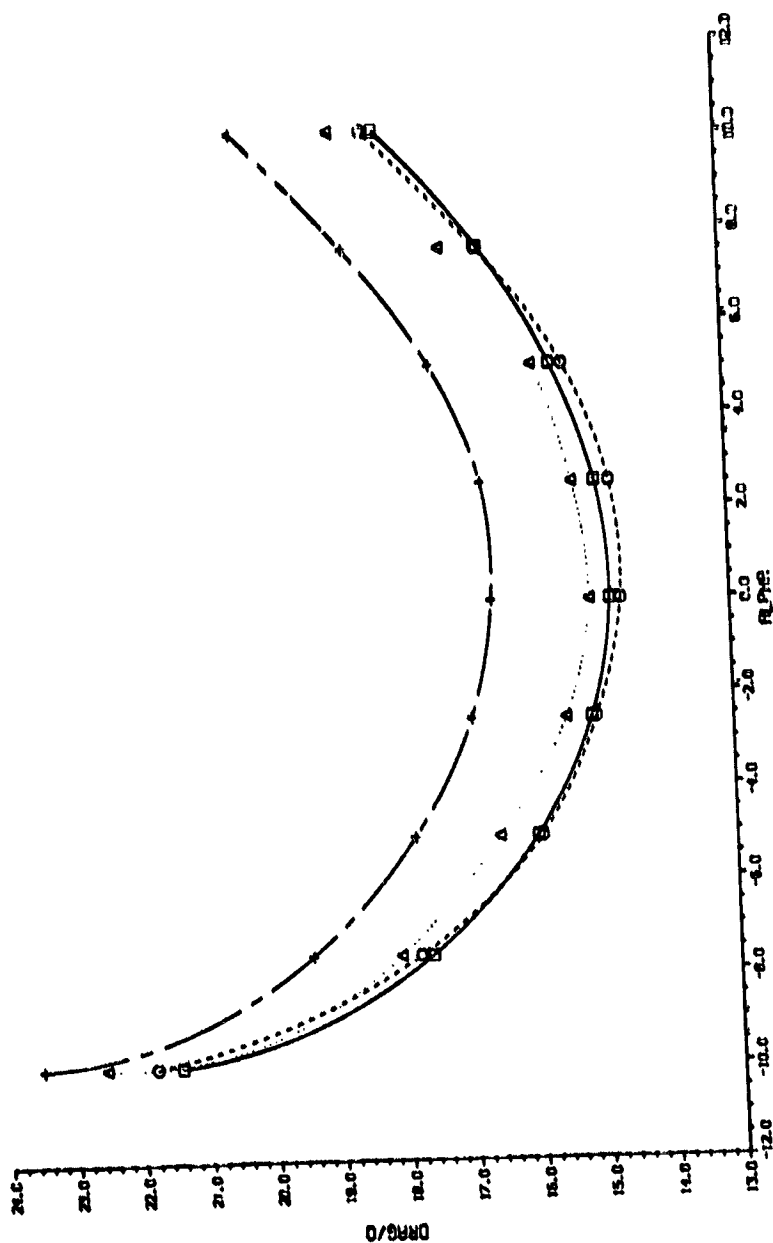
SECTION D-----

Plotted Performance and Loads Data-----

PRECEDING PAGE BLANK NOT FILMED

06/24/81
19:53:42
1

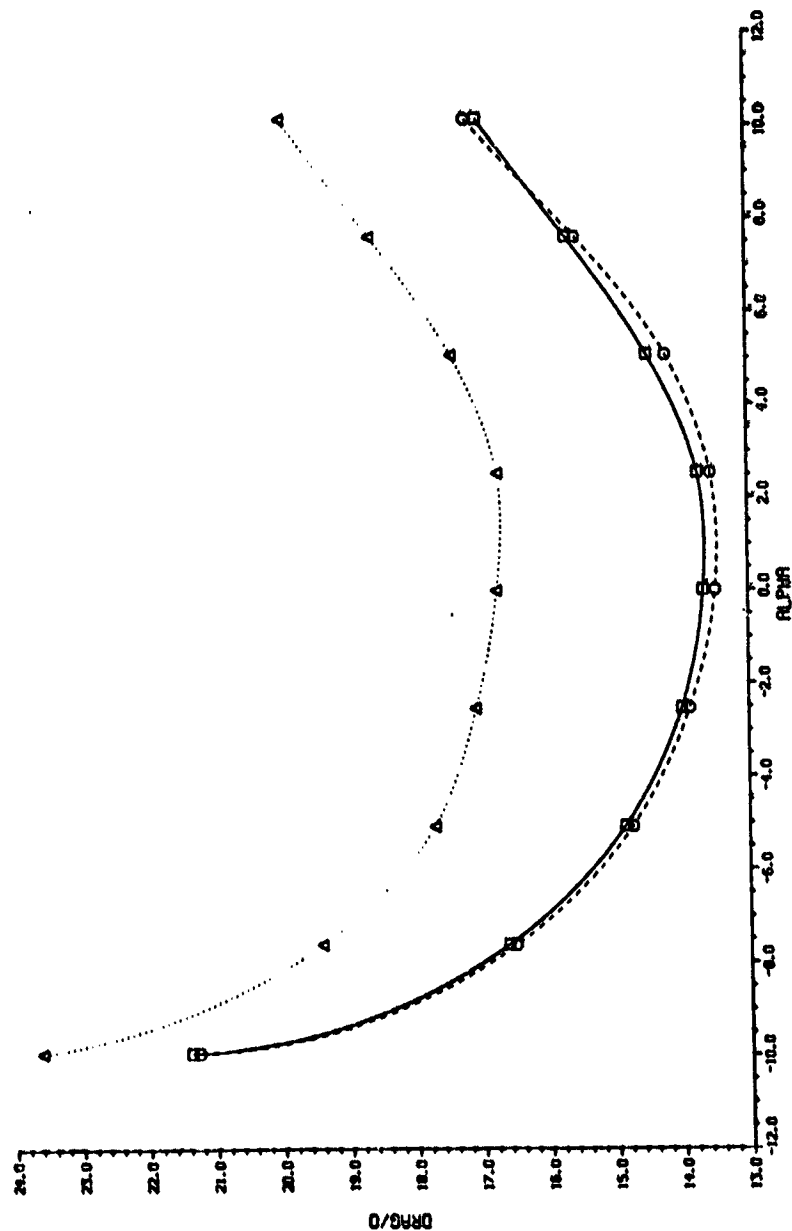
EFFECT OF HUB CONFIGURATION ON DRAG 120 KNOTS 343 RPM
12 - E3,E4,S4 13 - E3,E4 15 - NO FAIRINGS 17 - IC



SYMBOL
PLOT FILE NO. 12 13 15 17

06/24/81
18:55:13
2

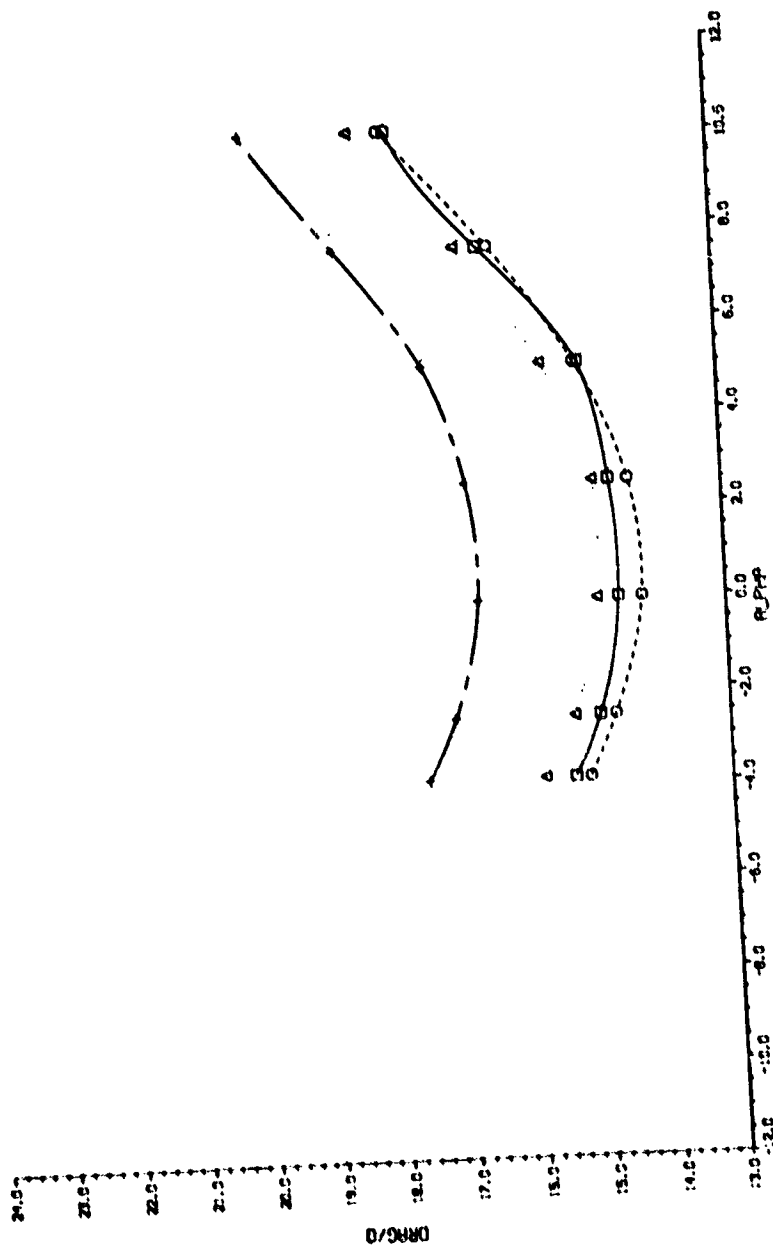
EFFECT OF HUB CONFIGURATION ON DRAG 120 KNOTS 0 RPM
12 - E3,E4,54 13 - E3,E4 18 - 1C



SYMBOL
PLOT FILE NO. 12 13 18

06/24/81
18:56:17
3

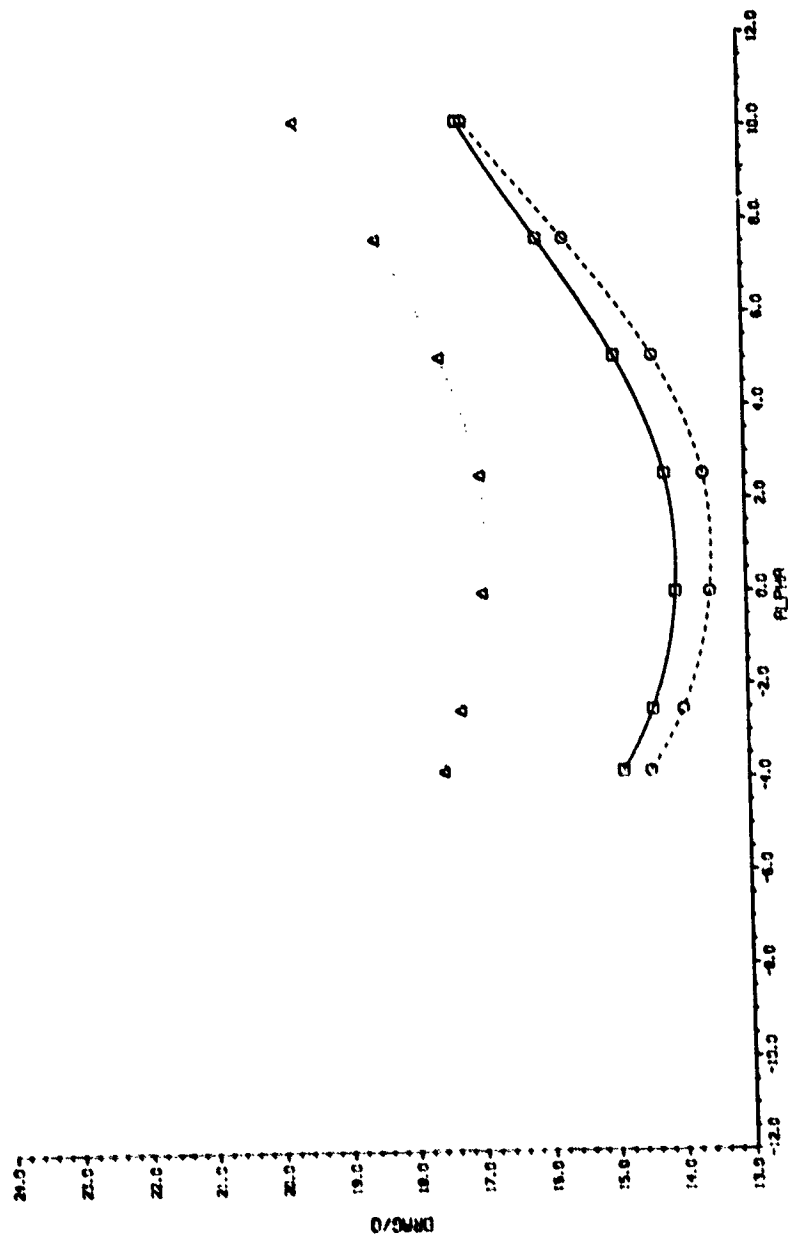
EFFECT OF MJB CONFIGURATION ON DRAG 180 KNOTS 343 RPM
12 - E3,E4,S4 13 - E3,E4 15 - NO SPRINGS 18 - IC



SYMBOL
PLOT FILE NO. 12 13 15 18

08/24/81
18:57:26
4

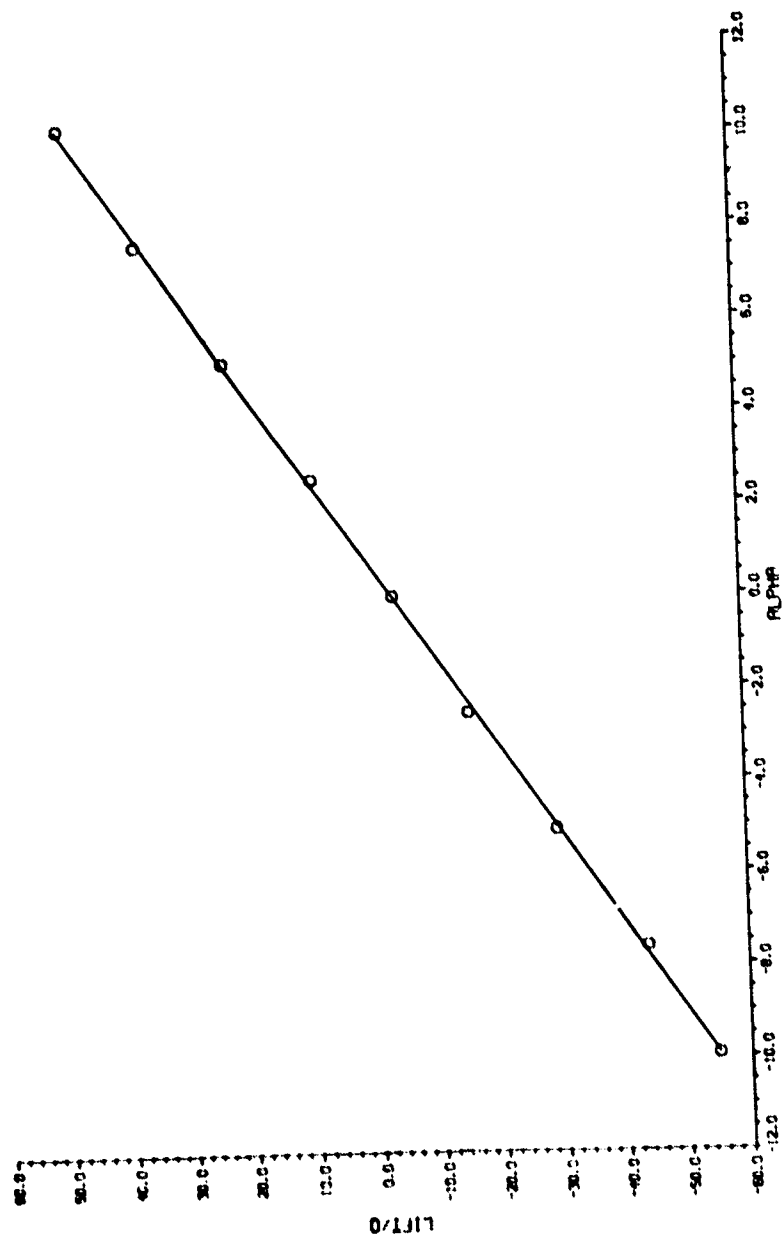
EFFECT OF HUB CONFIGURATION ON DRAG 183 KNOTS 0 RPM
12 - E3.E4.S4 13 - E3.E4 18 - 1C



SYMBOL
PLOT FILE NO. 12 13 18

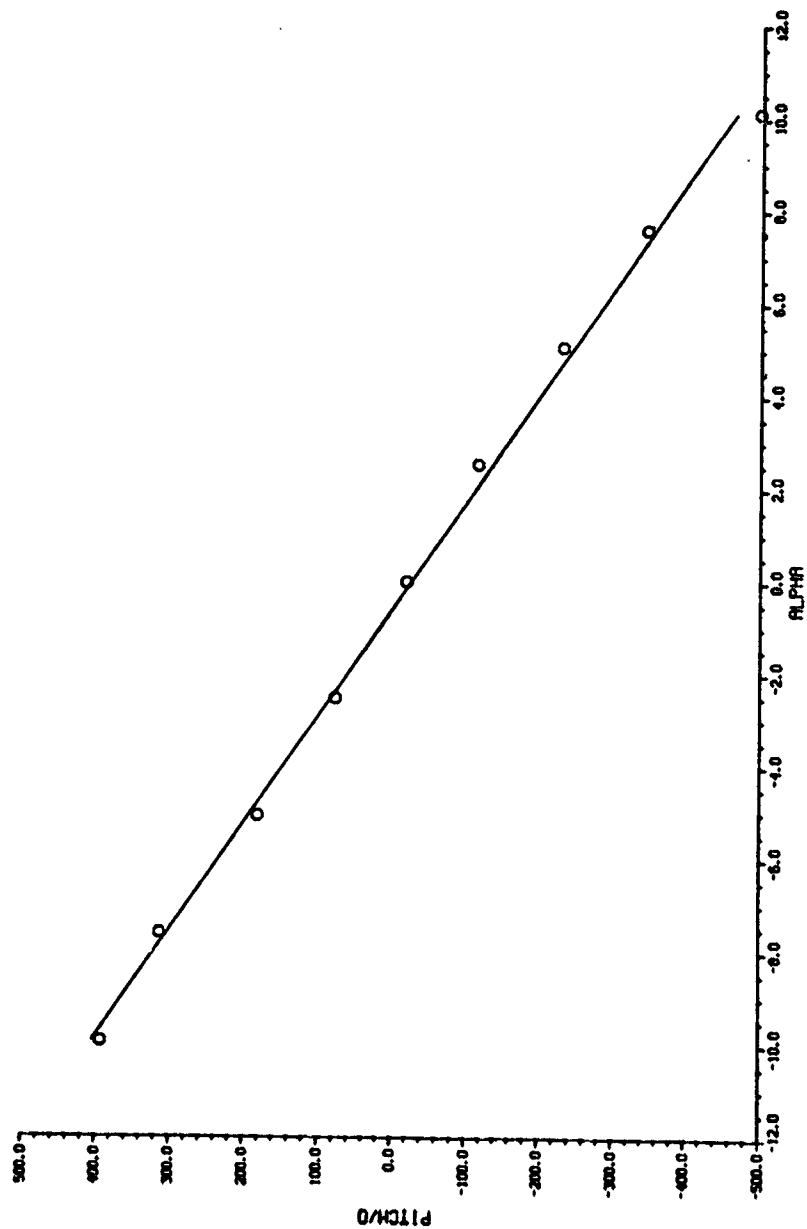
07/01/81
19:35:46
1

EFFECT OF ANGLE OF ATTACK ON LIFT
P/N 17 - 1C 120 KNOTS 343 RPM



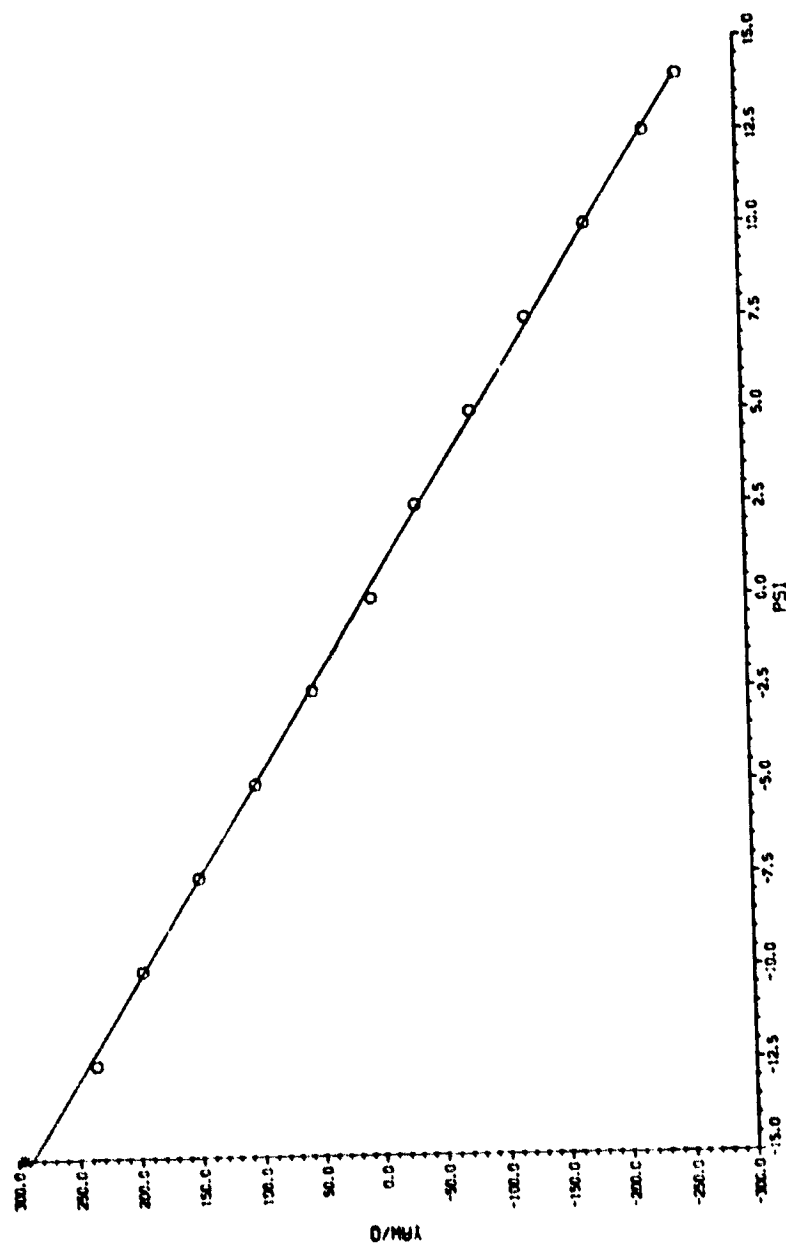
EFFECT OF ANGLE OF ATTACK ON PITCHING MOMENT
RUN 17 - IC 120 KNOTS 343 RPM

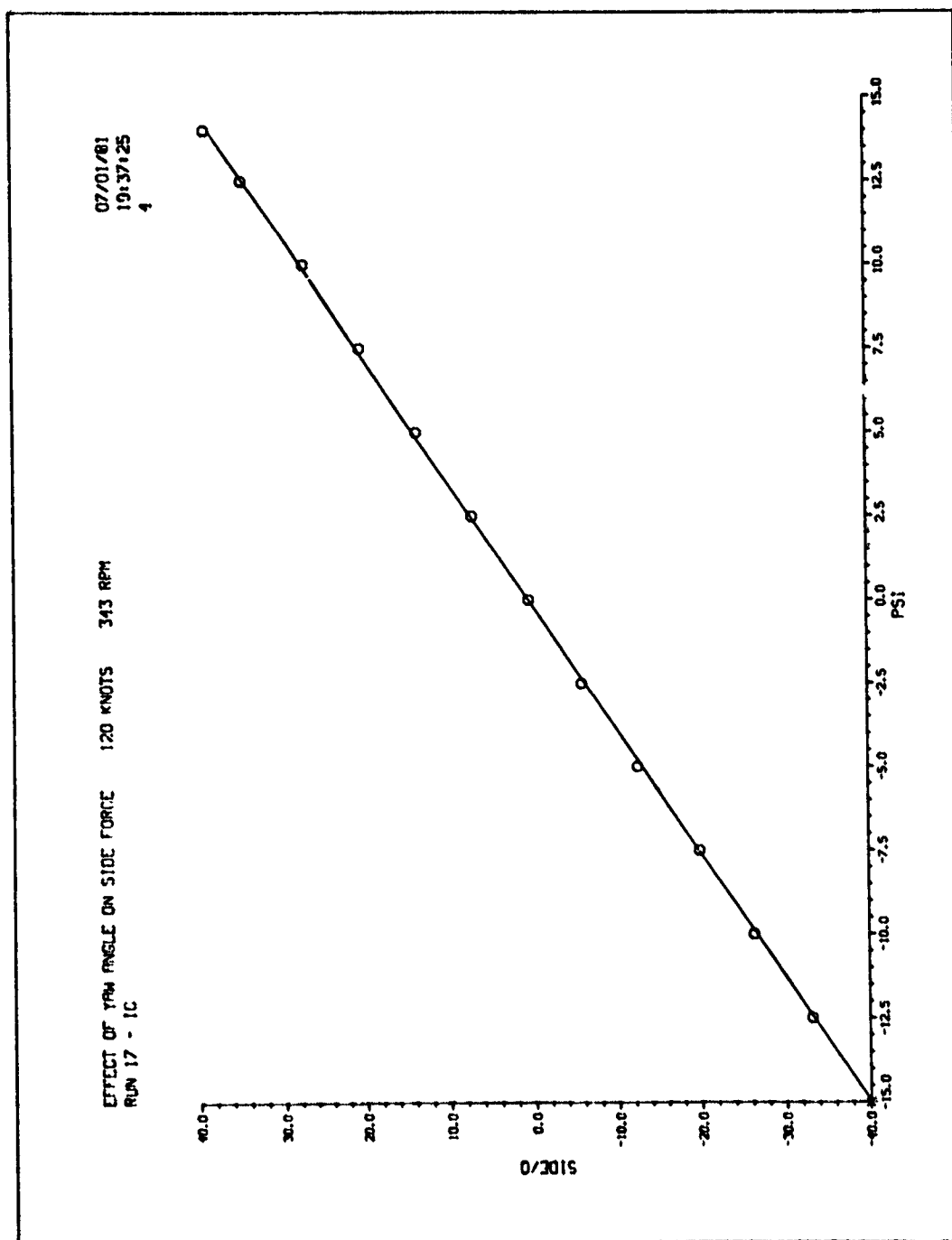
07/01/81
19:36:18
2



07/01/81
19:37:05
3

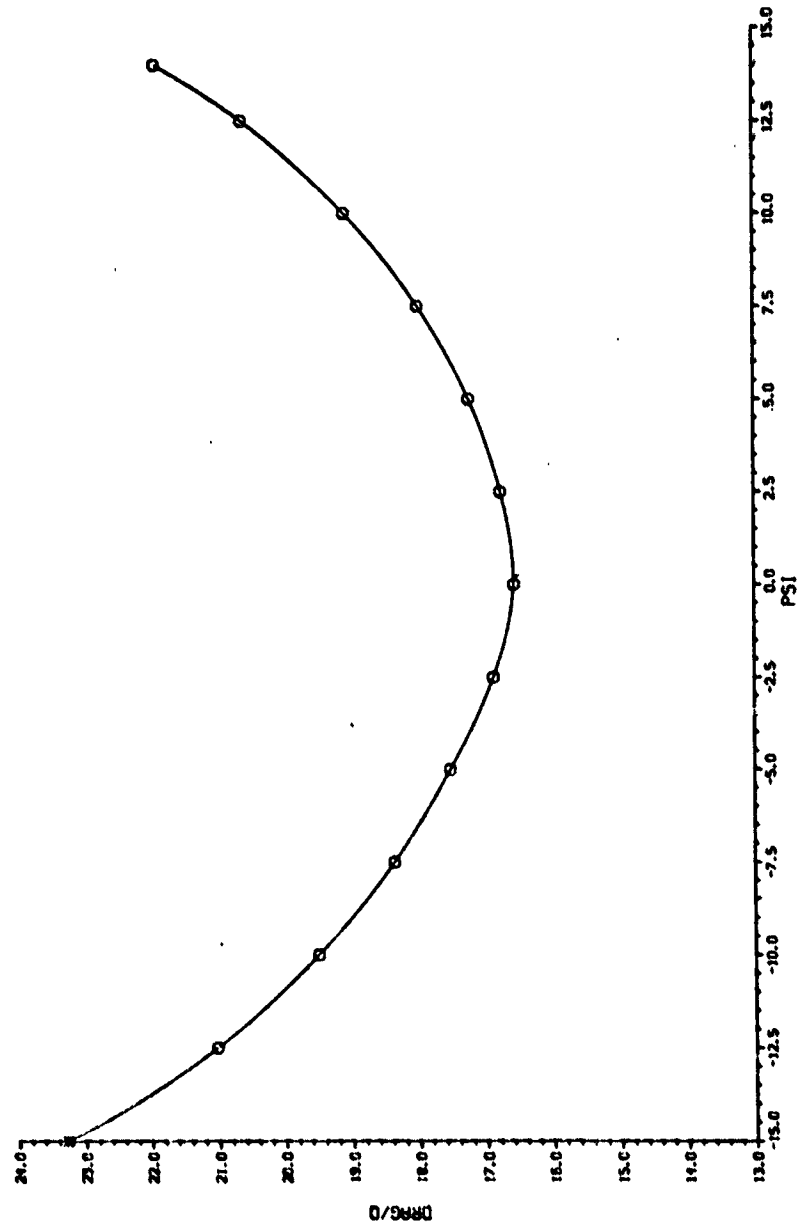
EFFECT OF YPA ANGLE ON YAWING MOMENT 120 KNOTS 343 RPM
PJM 17 - 1C





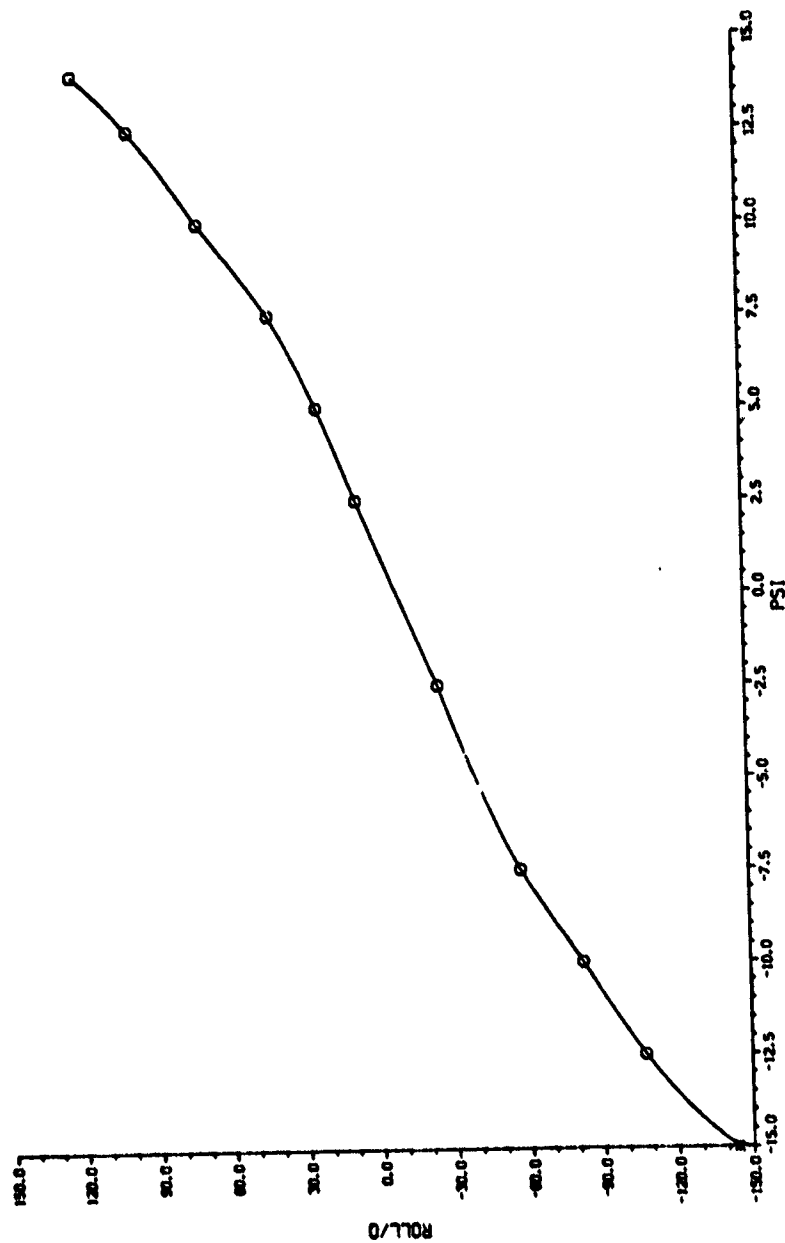
07/01/81
19:37:55
5

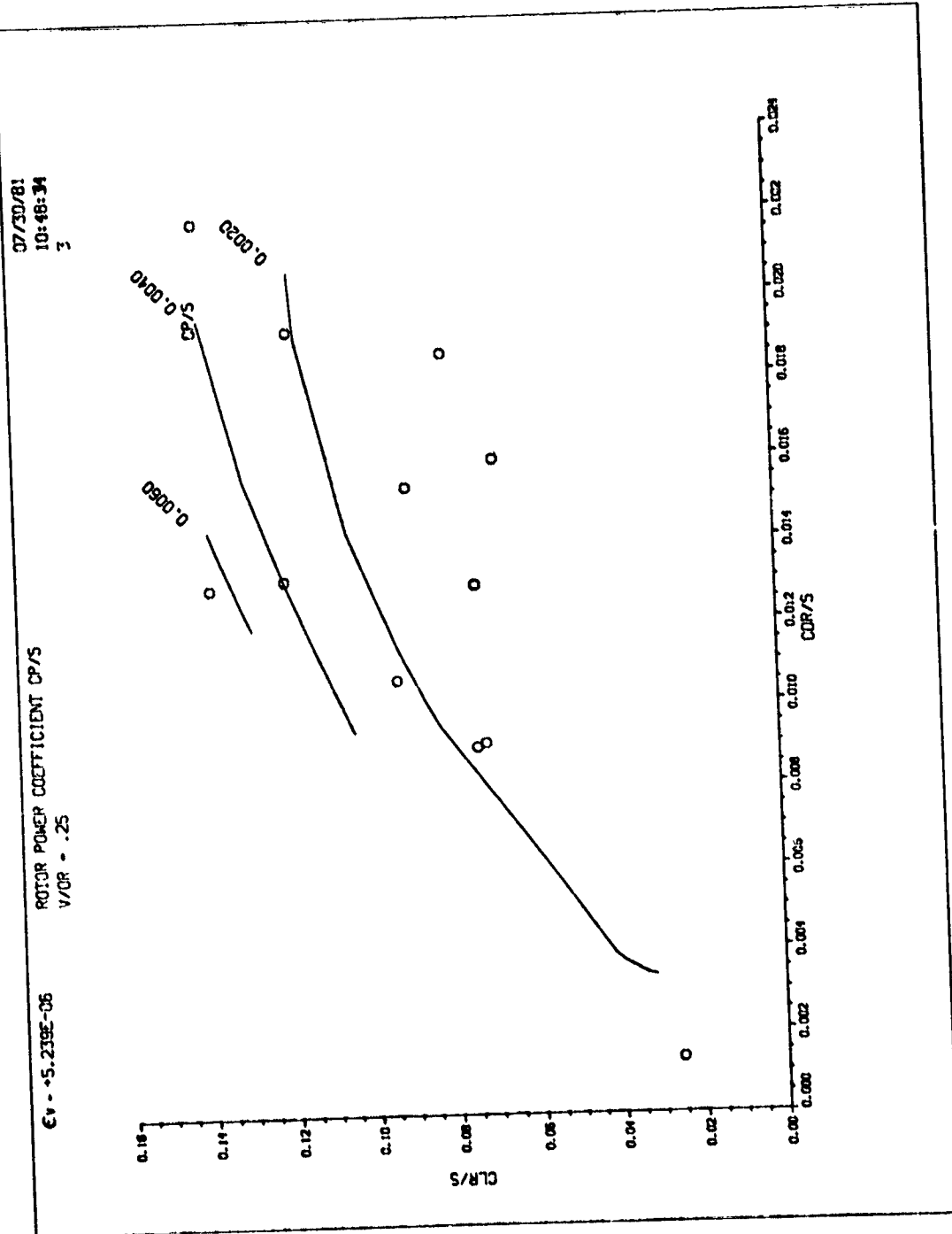
EFFECT OF YAW ANGLE ON DRAG 120 KNOTS 343 RPM
RUN 17 - 1C

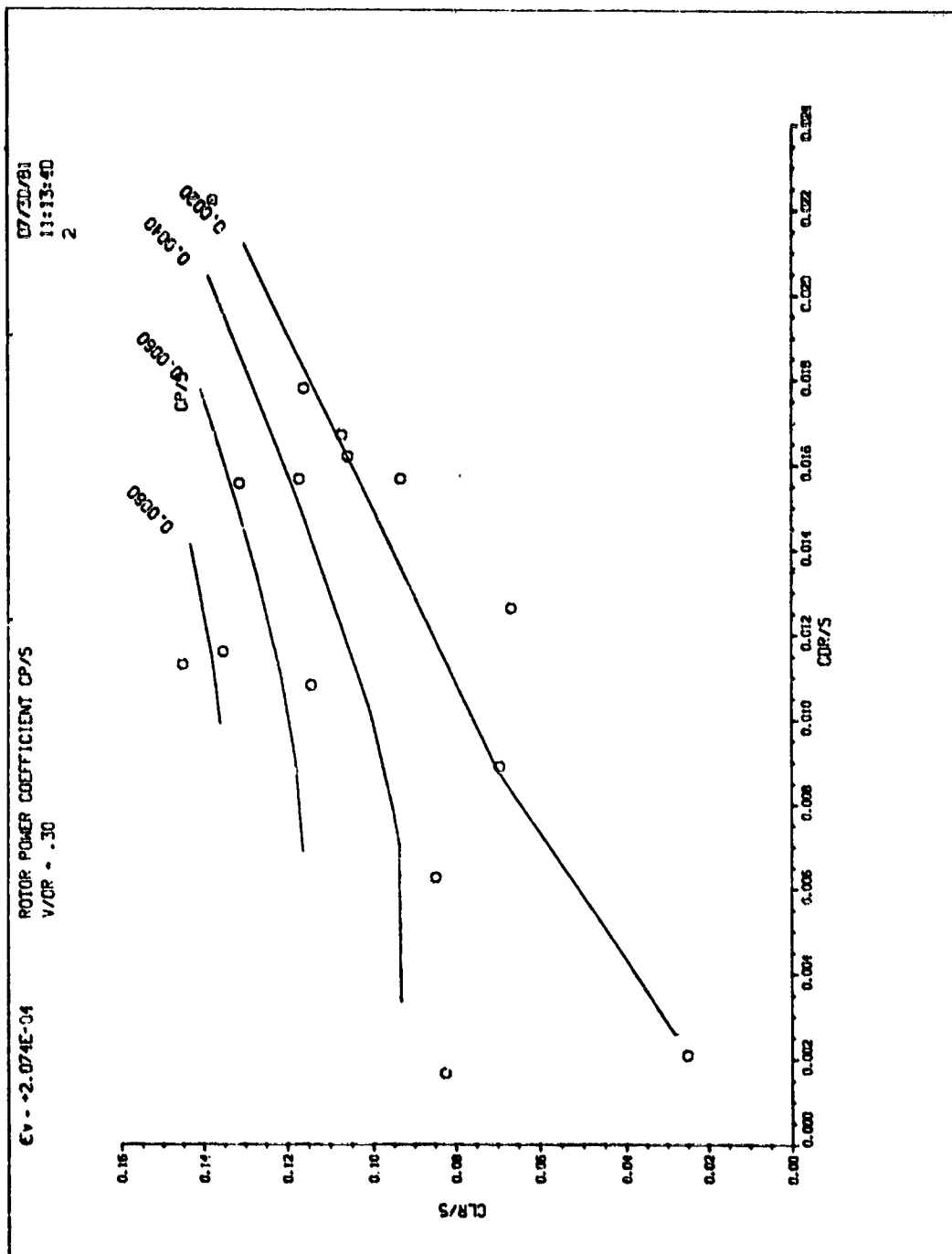


07/01/81
19:38:28
6

EFFECT OF YAW ANGLE ON ROLLING MOMENT 120 KNOTS 343 RPM
RUN 17 - 1C

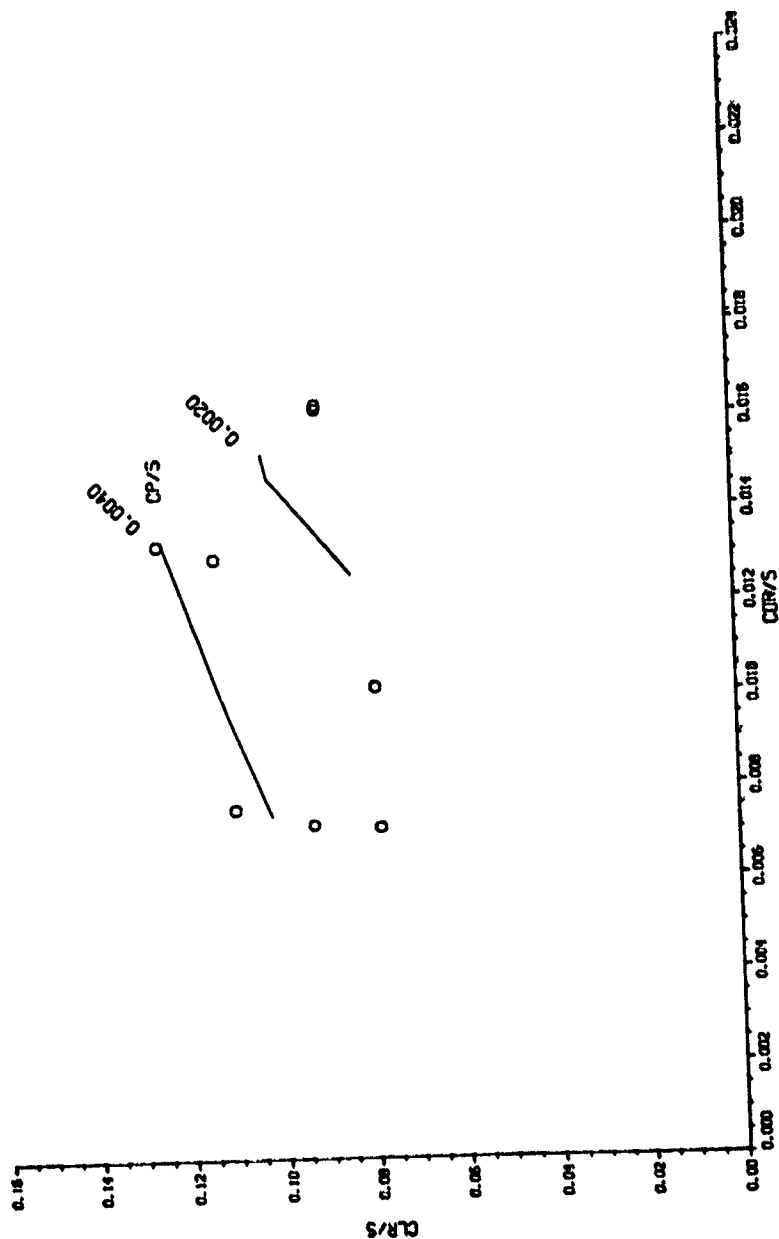






07/30/81
11:09:12
3

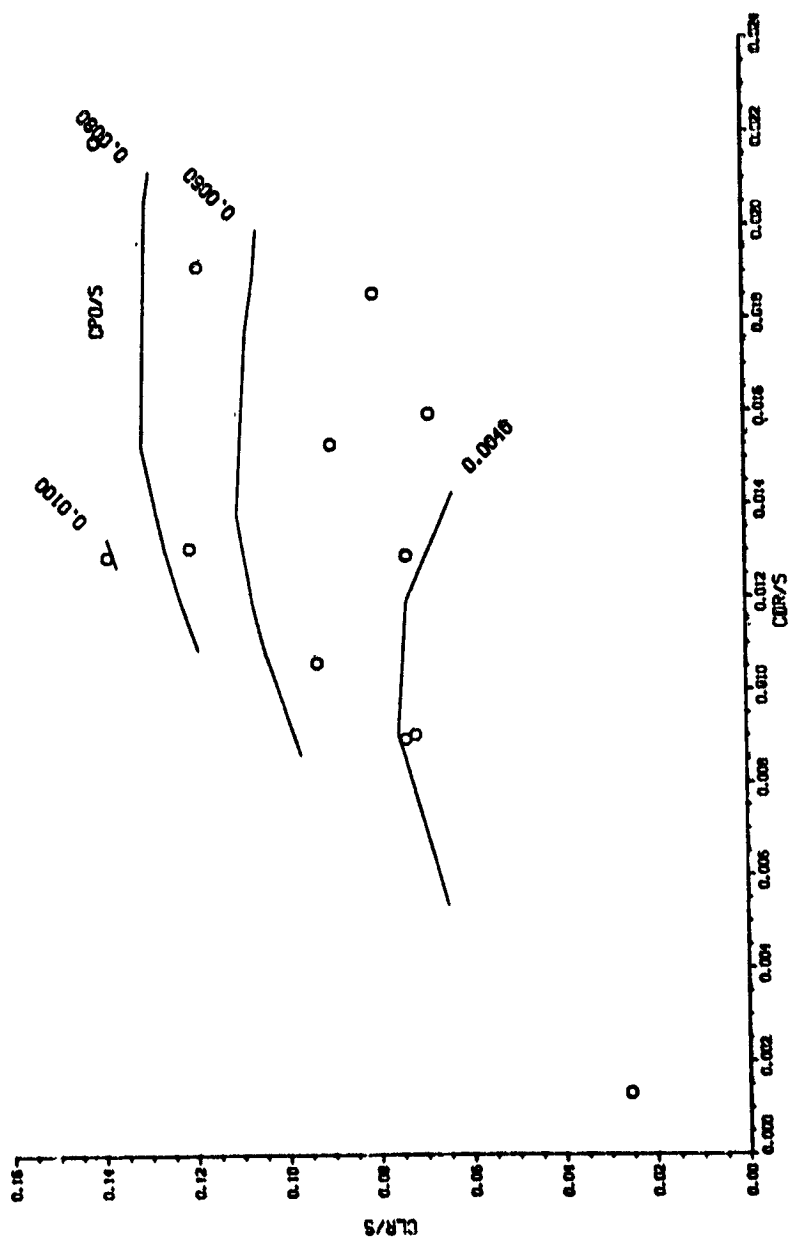
ROTOR POWER COEFFICIENT CP/S
V/VR = .40

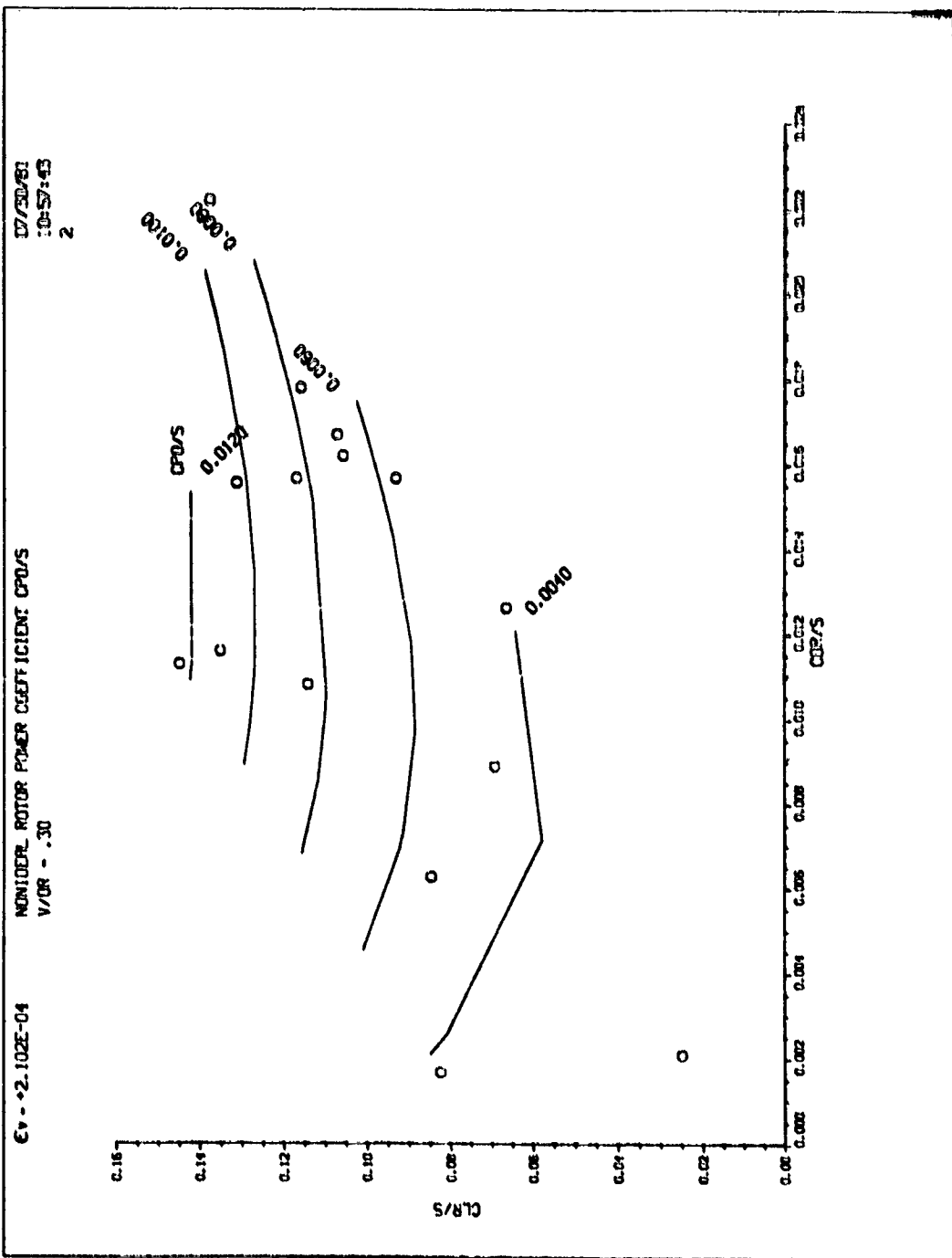


07/30/81
10:52:43
3

NONIDEL ROTOR POWER COEFFICIENT C_{PD}/S
V/D_R = .25

C_v = +4.255E-06

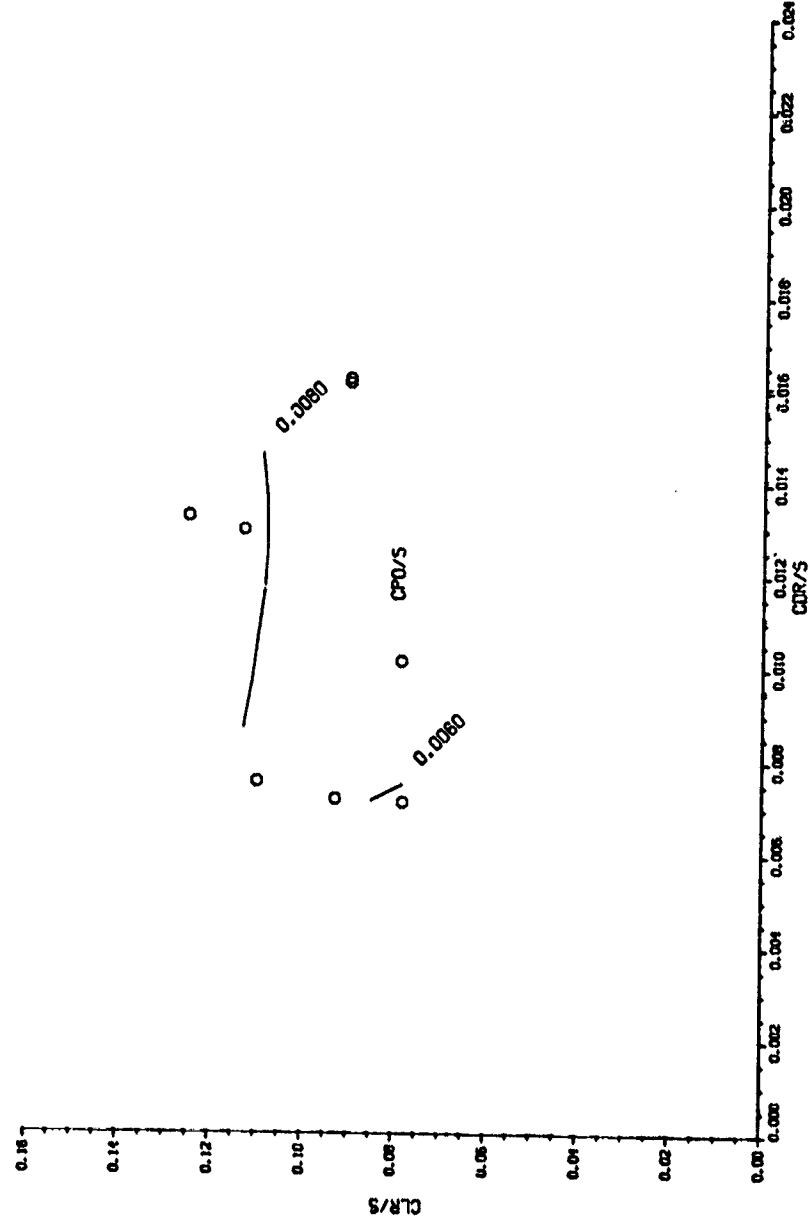




07/30/81
11:02:50
2

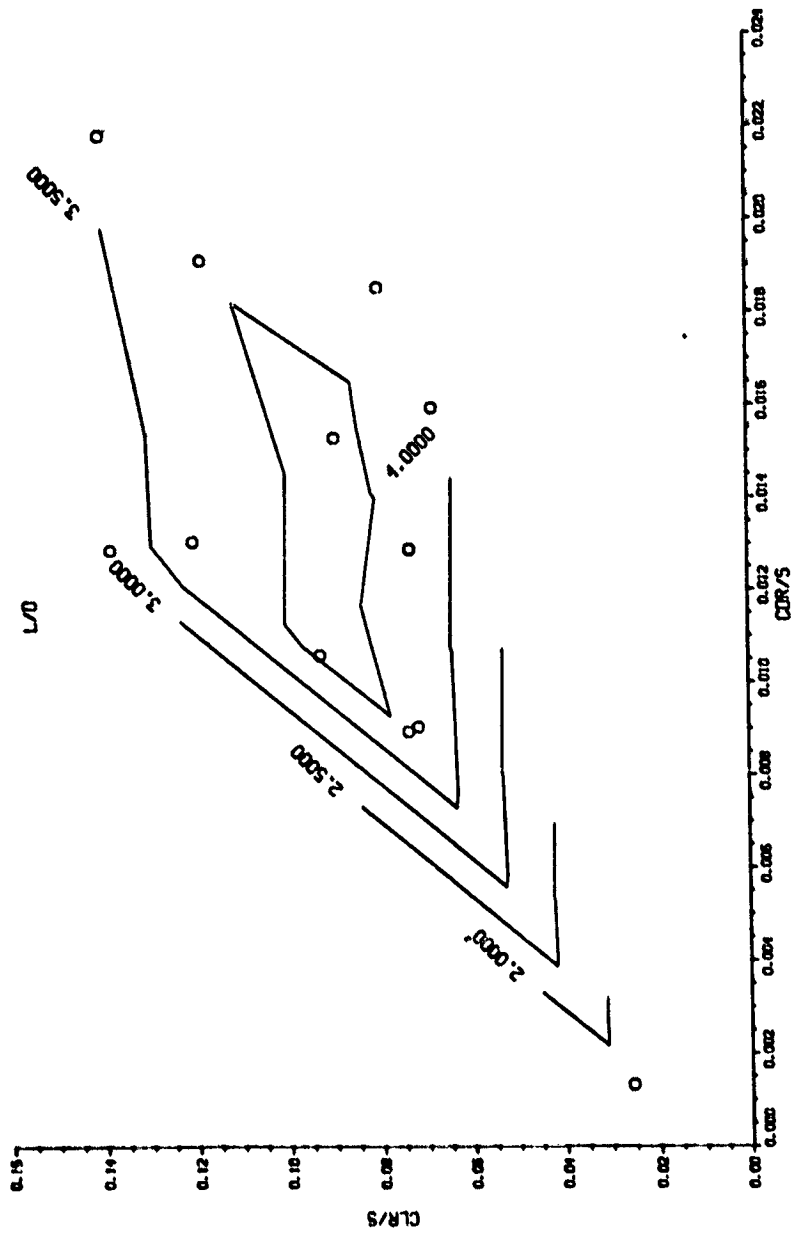
NONIDPL ROTOR POWER COEFFICIENT CPO/S
V/VR = .40

$C_v = +1.656E-05$



06/10/81
13:15:13
1

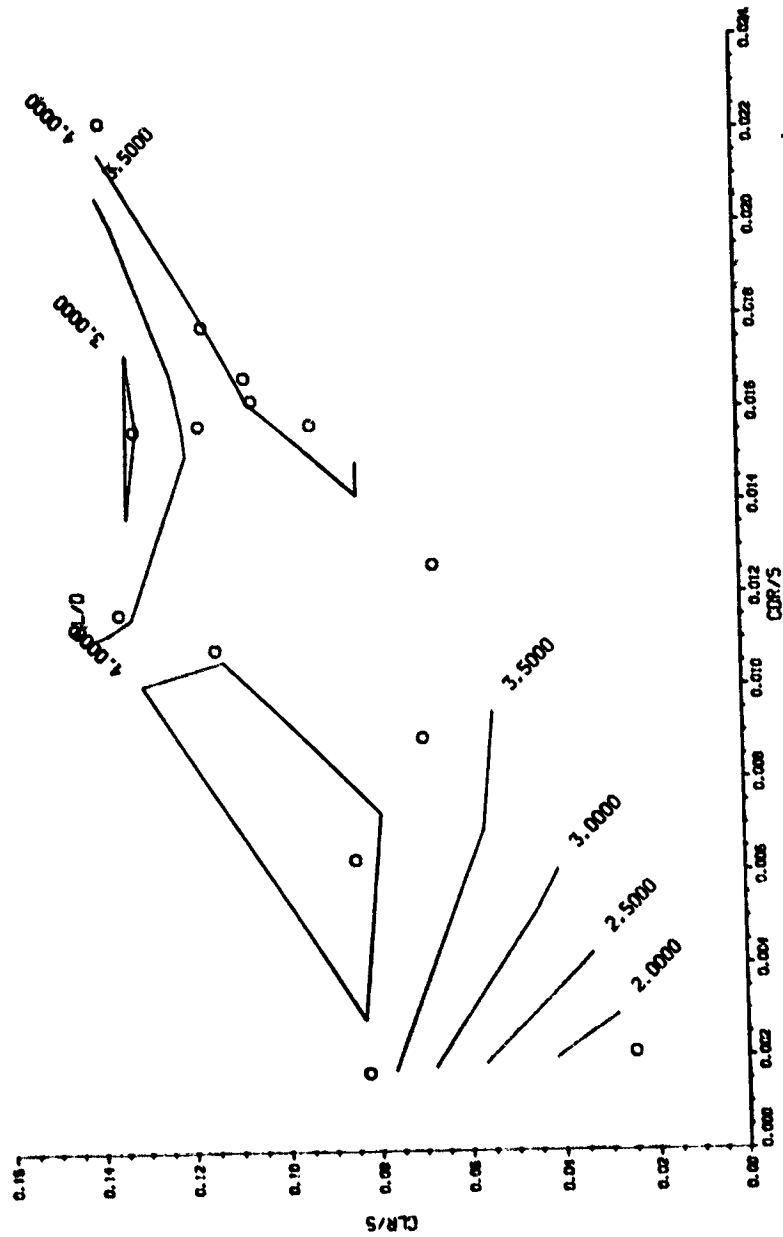
ROTOR LIFT OVER DRAG
V/D = .25

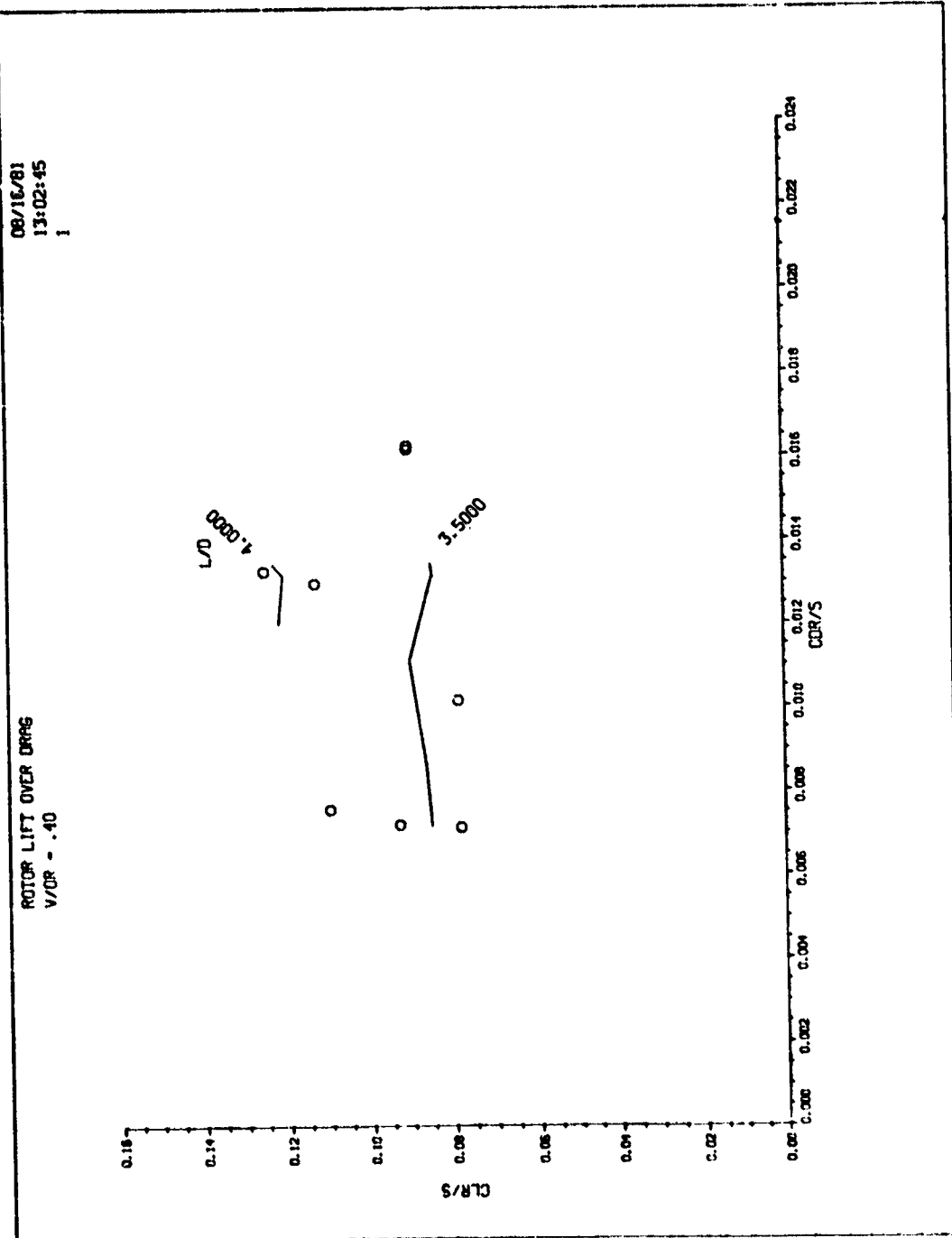


08/10/81
13:10:20
3

ROTOR LIFT OVER DRAG
V/D = .30

E = +2.595E-02

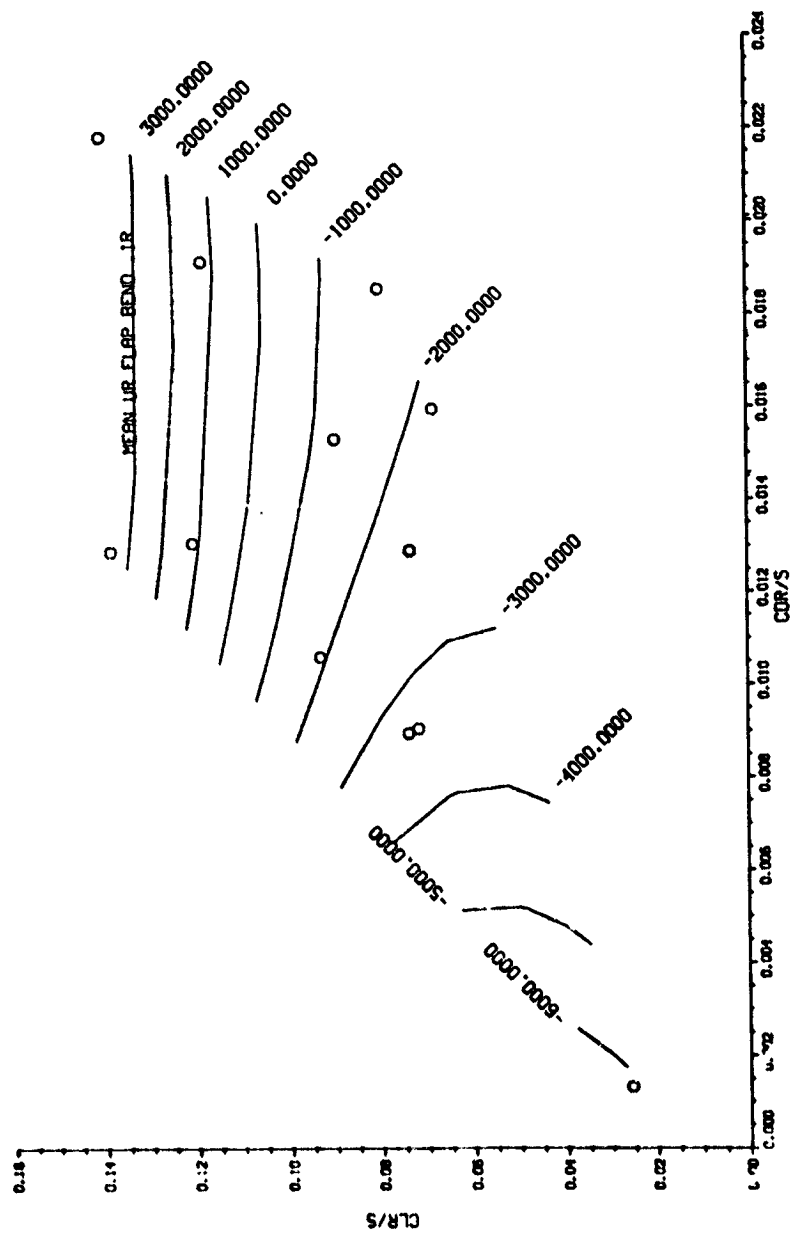




08/03/81
18:29:42
2

UPPER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/OP = .25

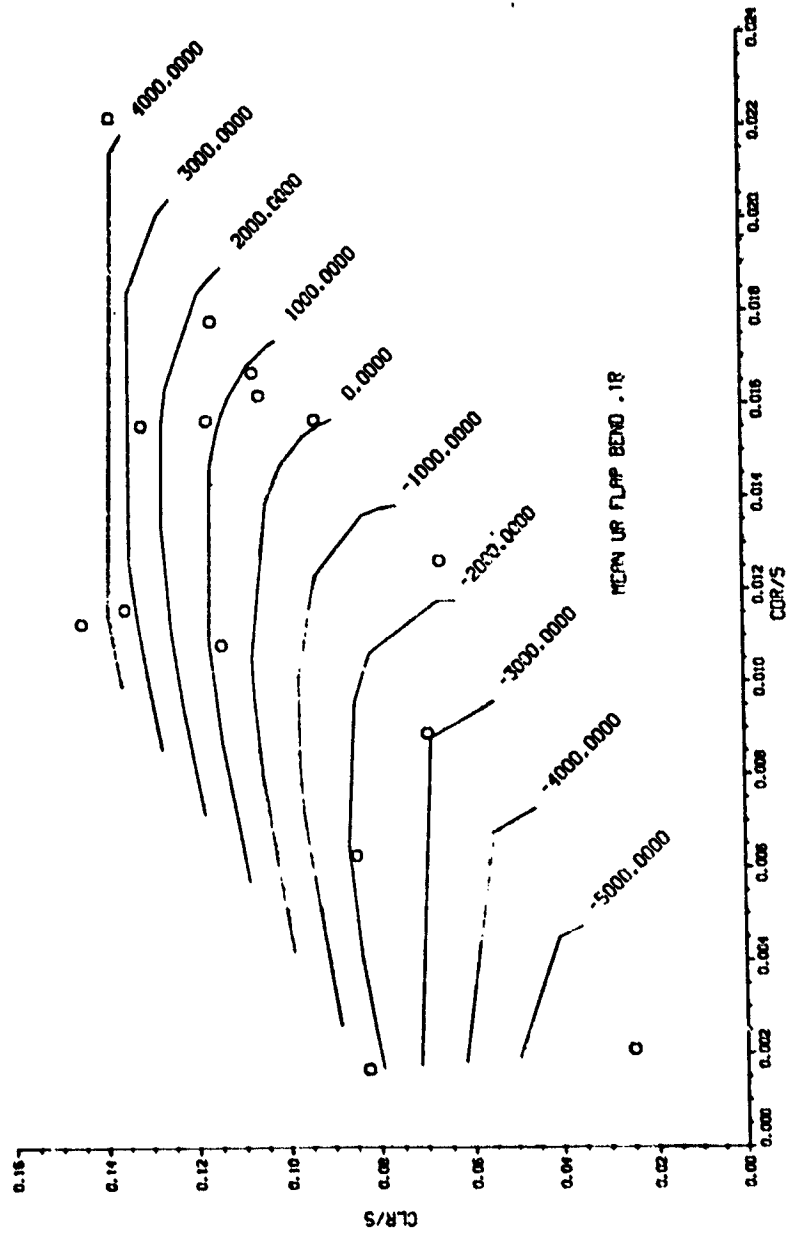
Cv = 1.217E-02



08/03/81
18:42:35
2

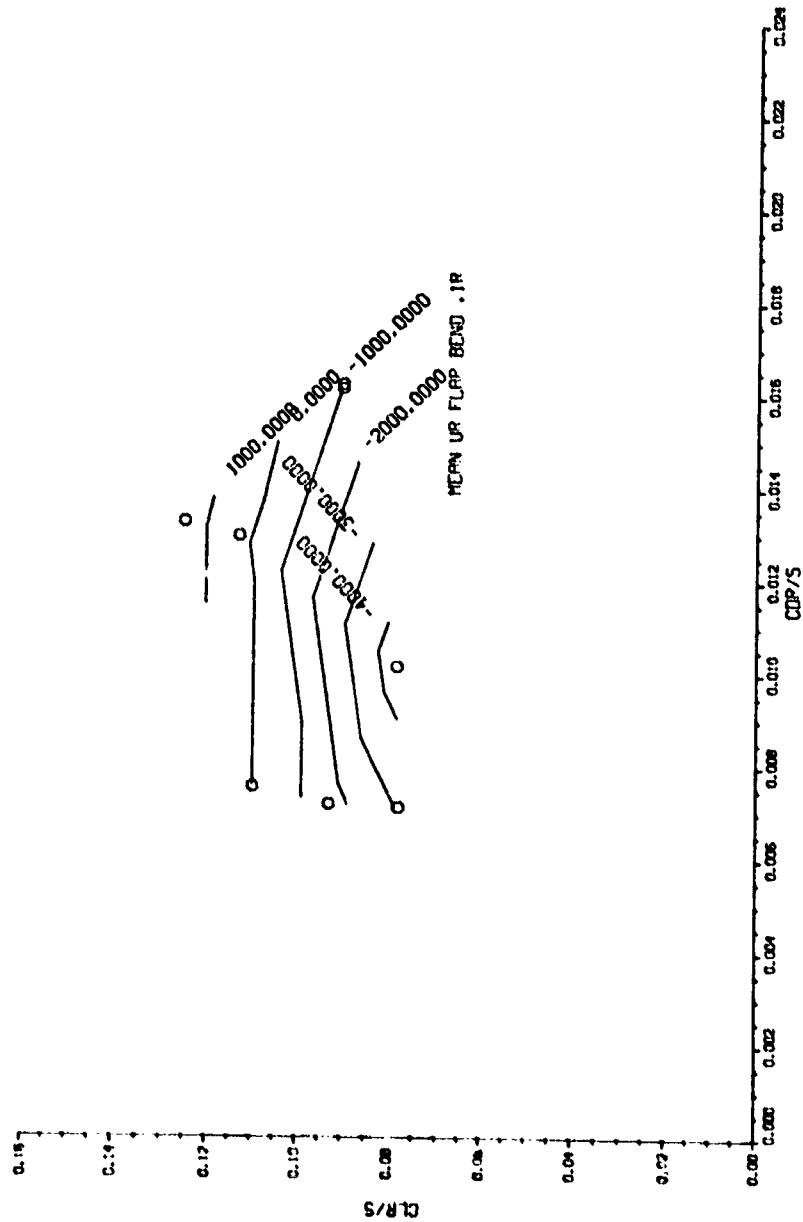
UPPER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/VR = .30

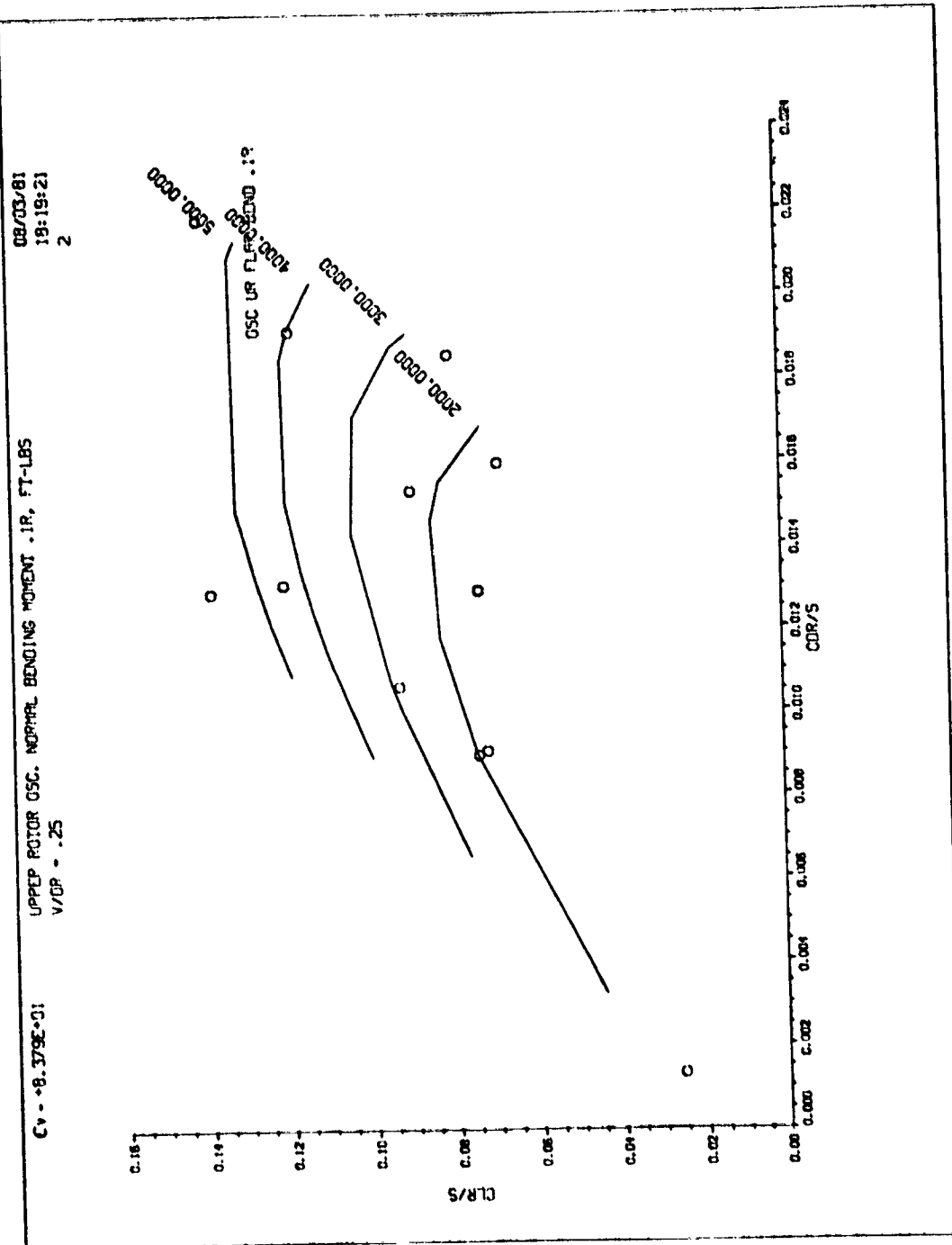
$\epsilon_v = -2.030E-02$



08/03/81
19:48:35
1

UPPER ROTOR MEAN NORMAL BENDING MOMENT .1R, FT-LBS
V/CP = .40

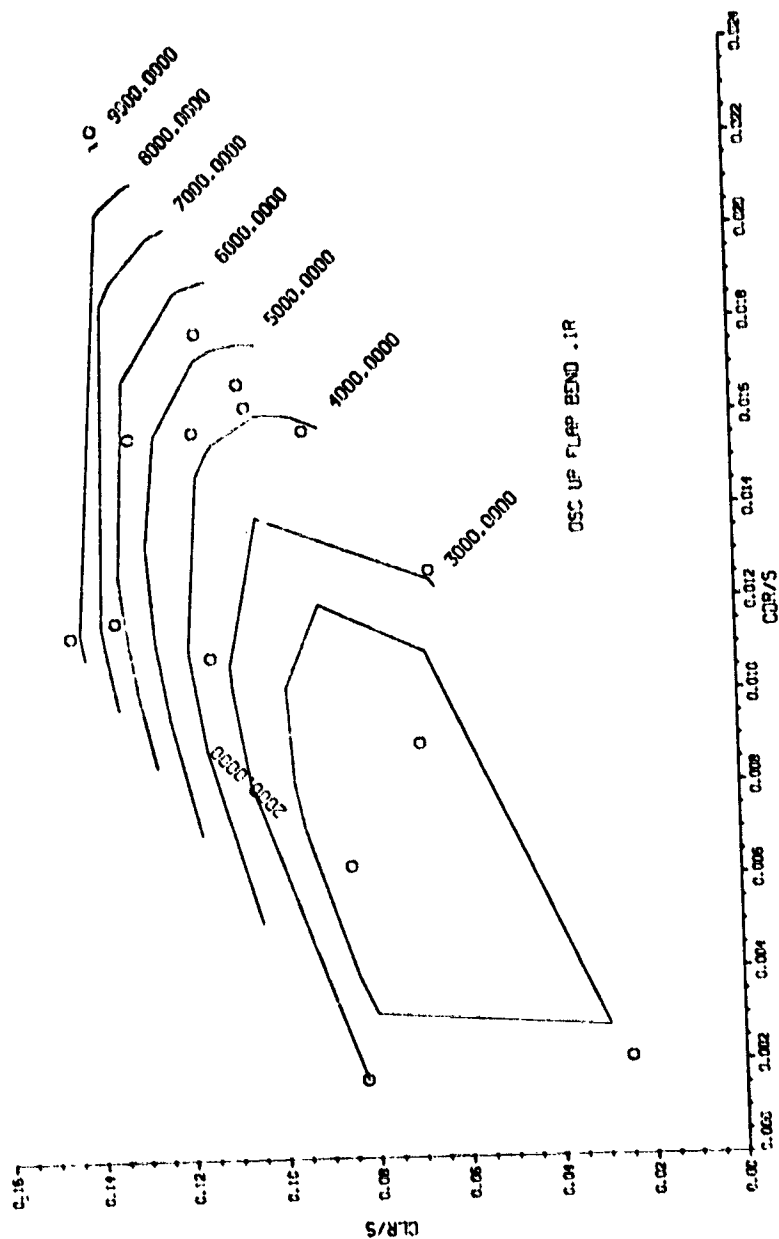




09/03/81
19:01:43
2

UPPER MOTOR OSC. NORMAL BENDING MOMENT .IP, FT-LBS
V/OP = .30

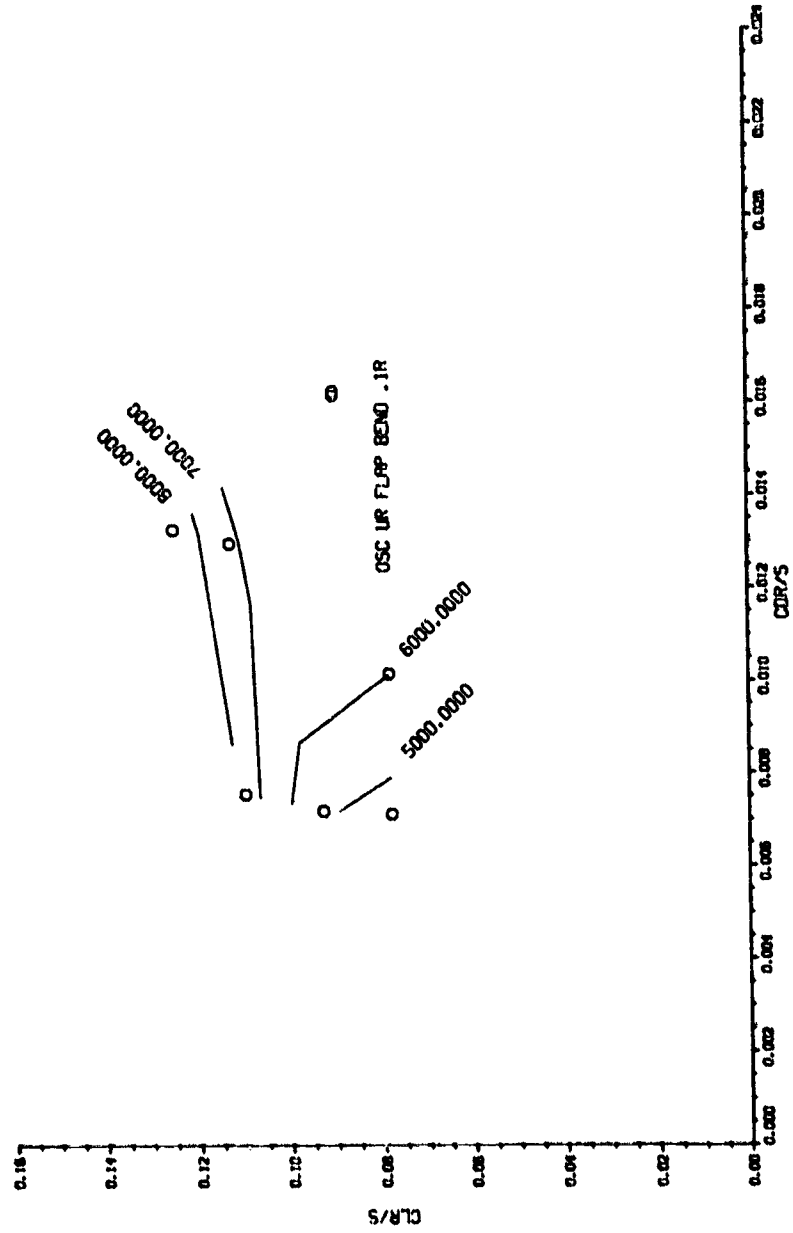
$E_v = +2.575E+02$

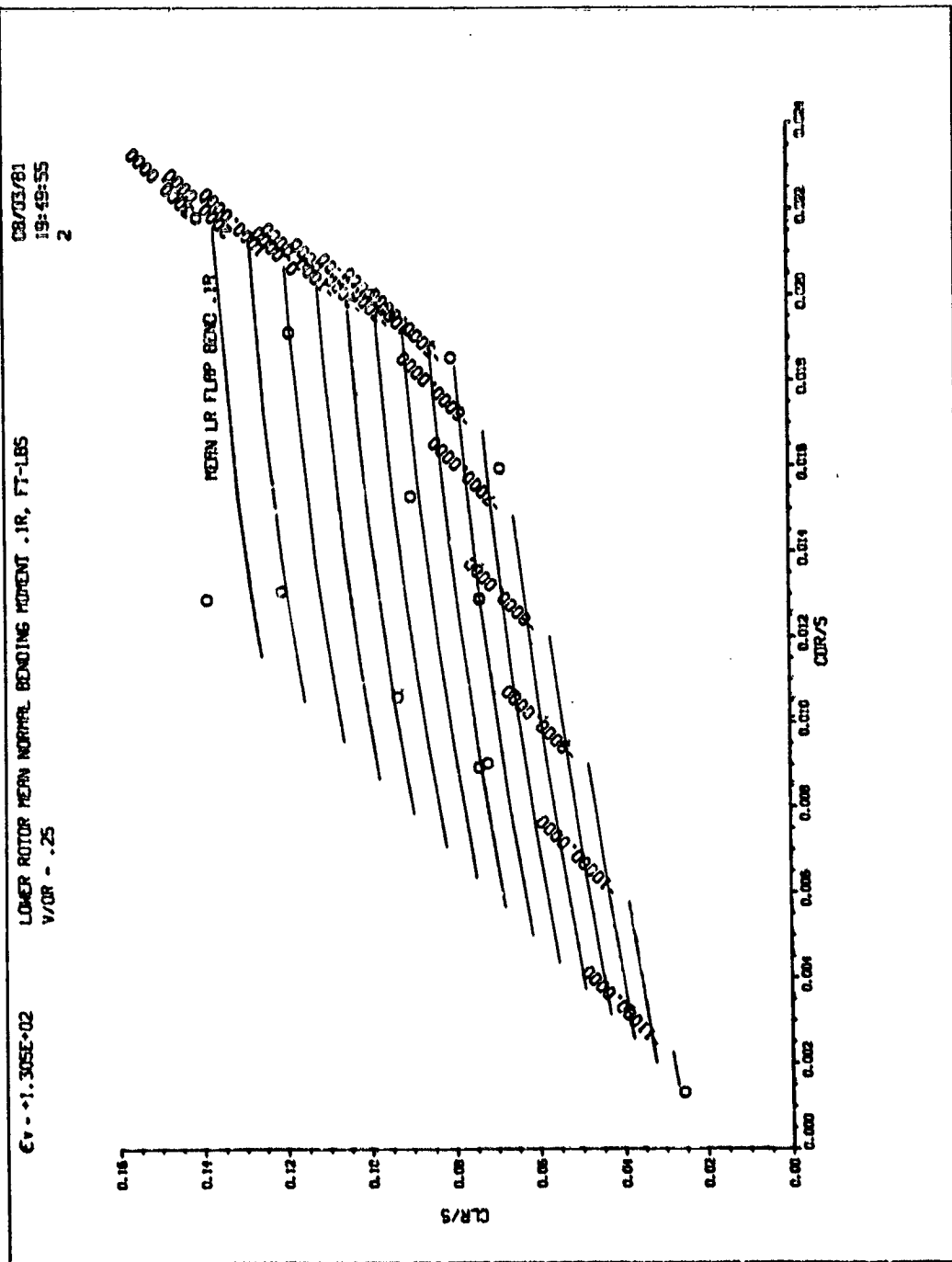


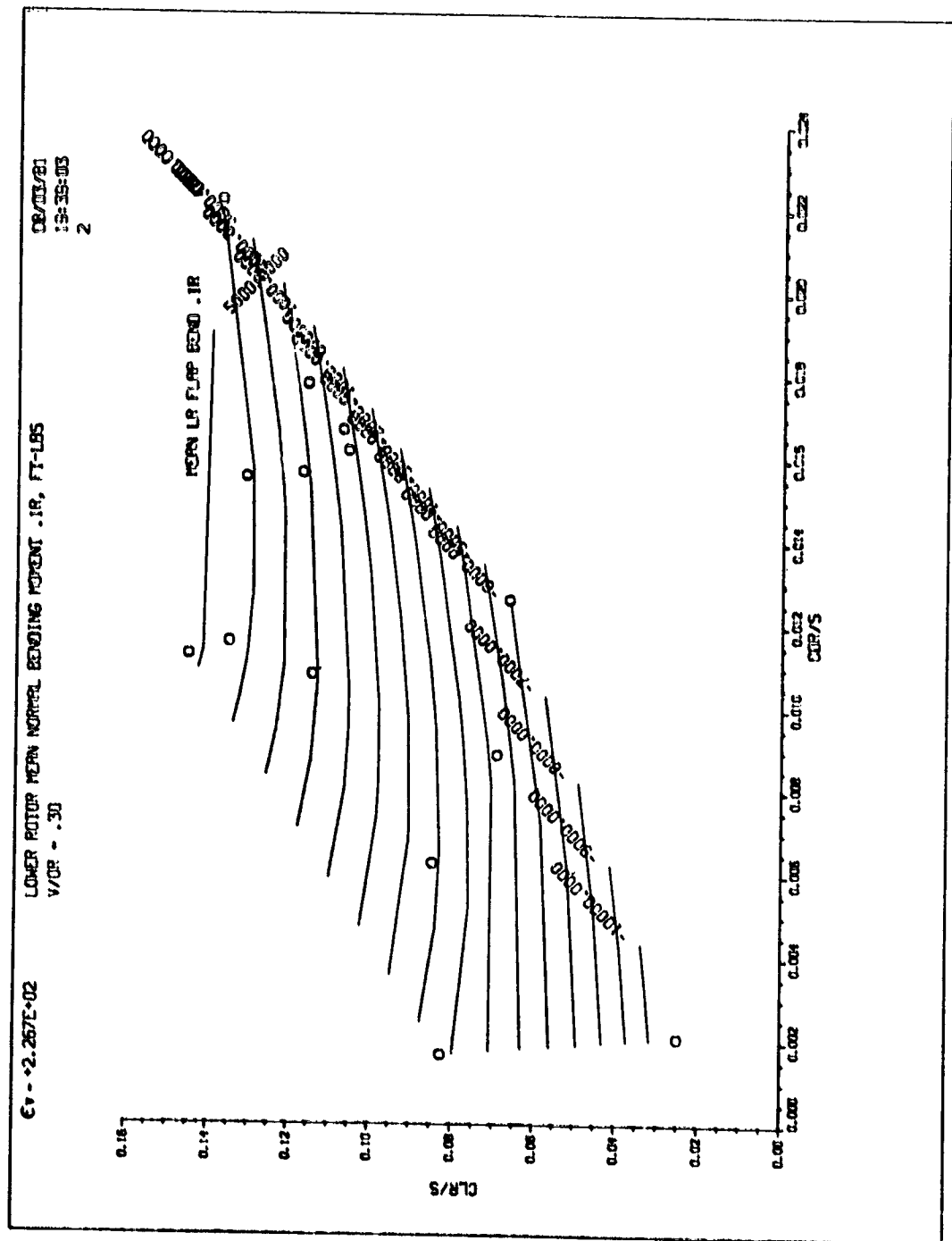
08/03/81
18:54:45
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UPPER ROTOR OSC. NORMAL BENDING MOMENT .1P, FT-LBS
V/DP = .40

CV - -9.276E-01



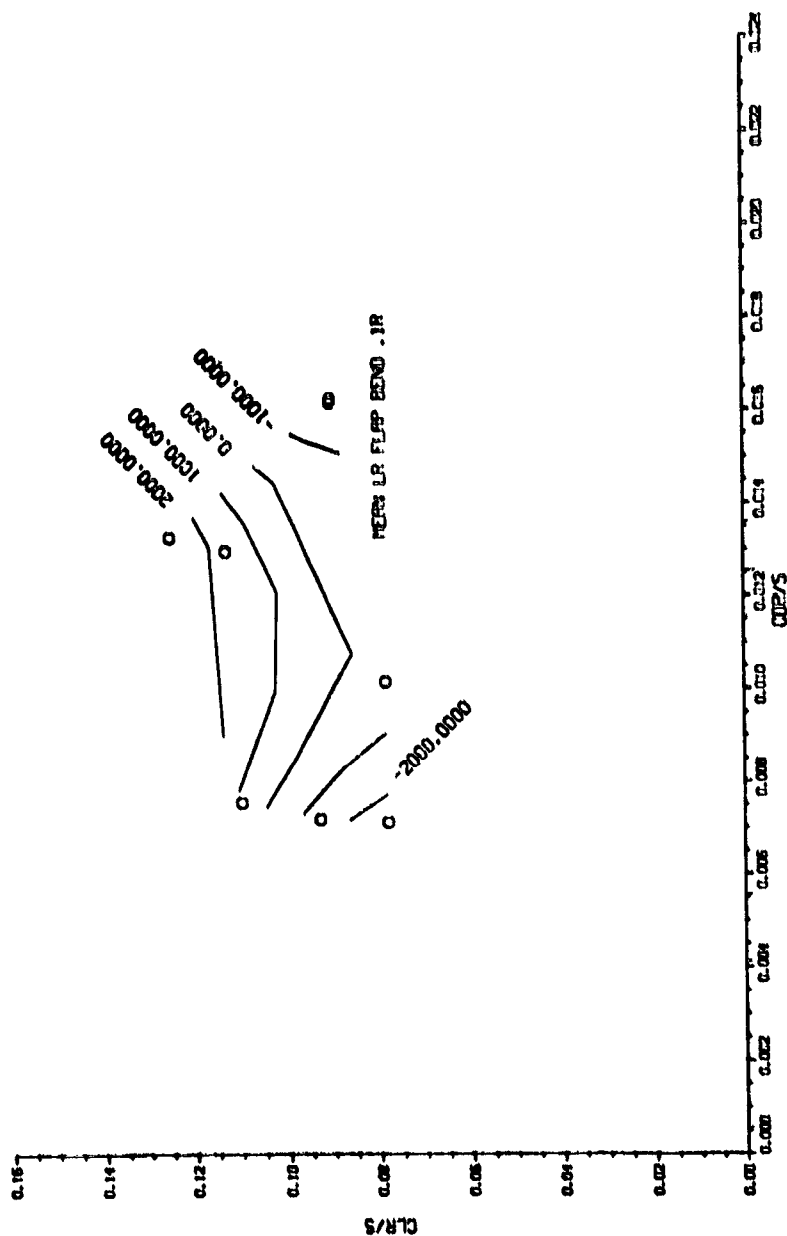




08/03/81
19:53:04
2

LOWER MOTOR PERN NORMAL BENDING MOMENT .18, FT-LBS
V/DK = .40

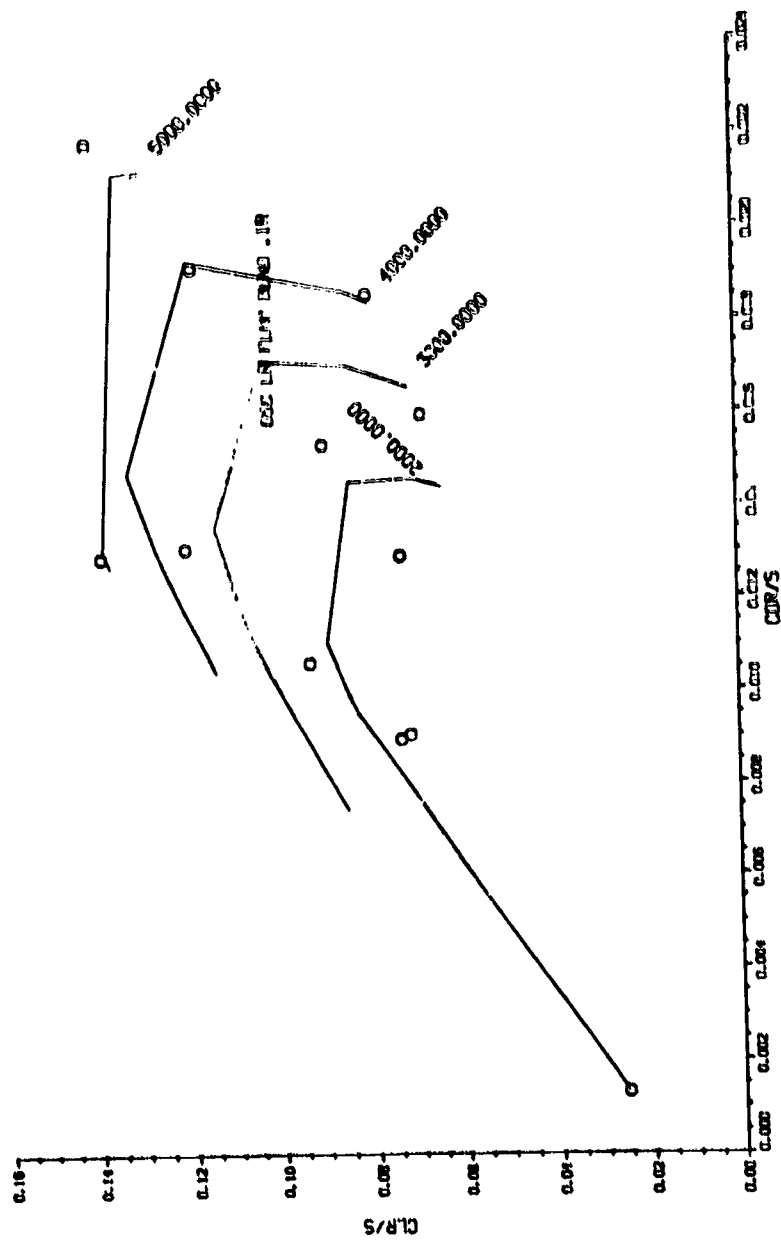
Cv = -2.759E+01

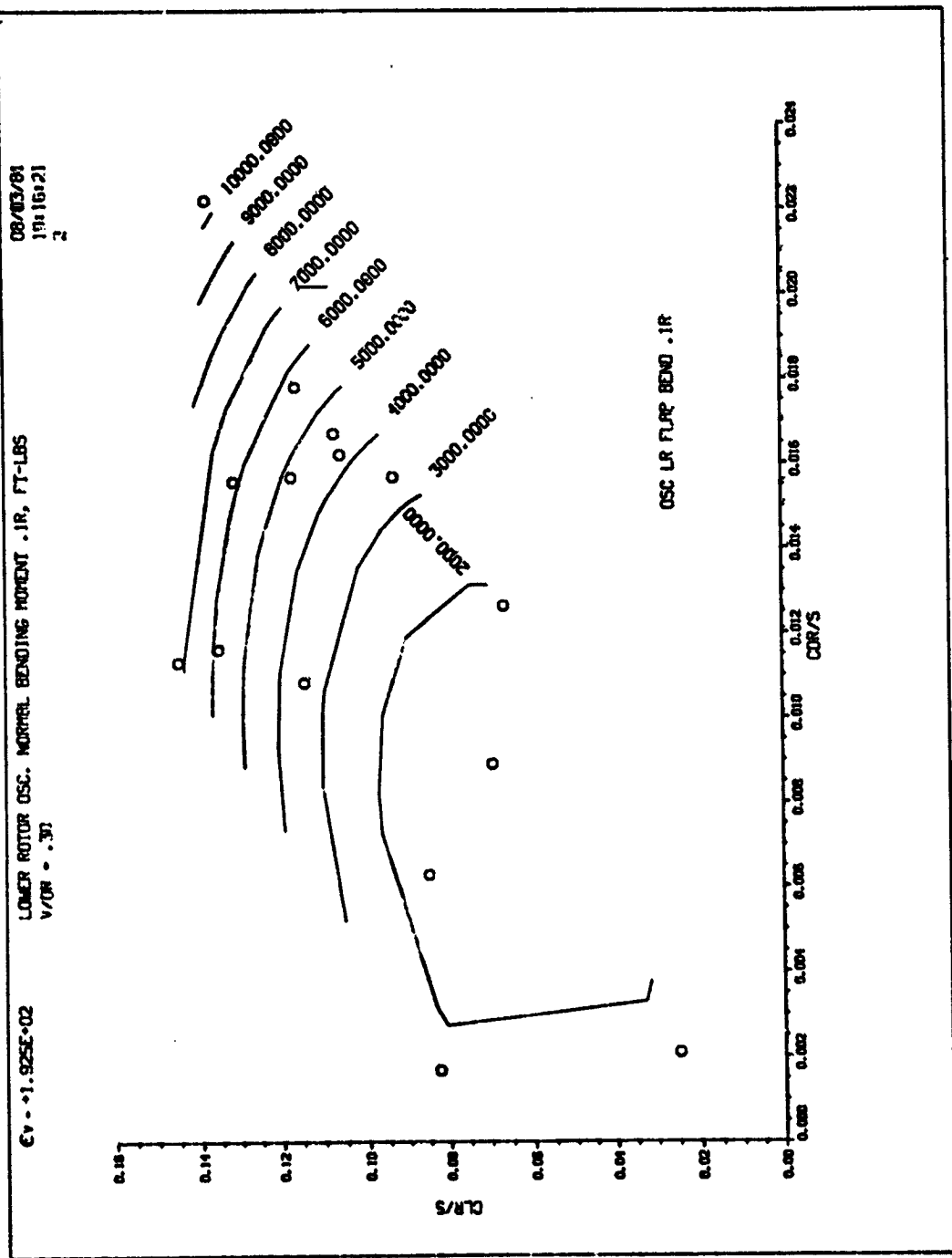


02/03/81
13:08:53
2

LOWER ROTOR OSC. NORMAL BENDING MOMENT .18, FT-LBS
V/DK = .25

Cv = +1.44E+02



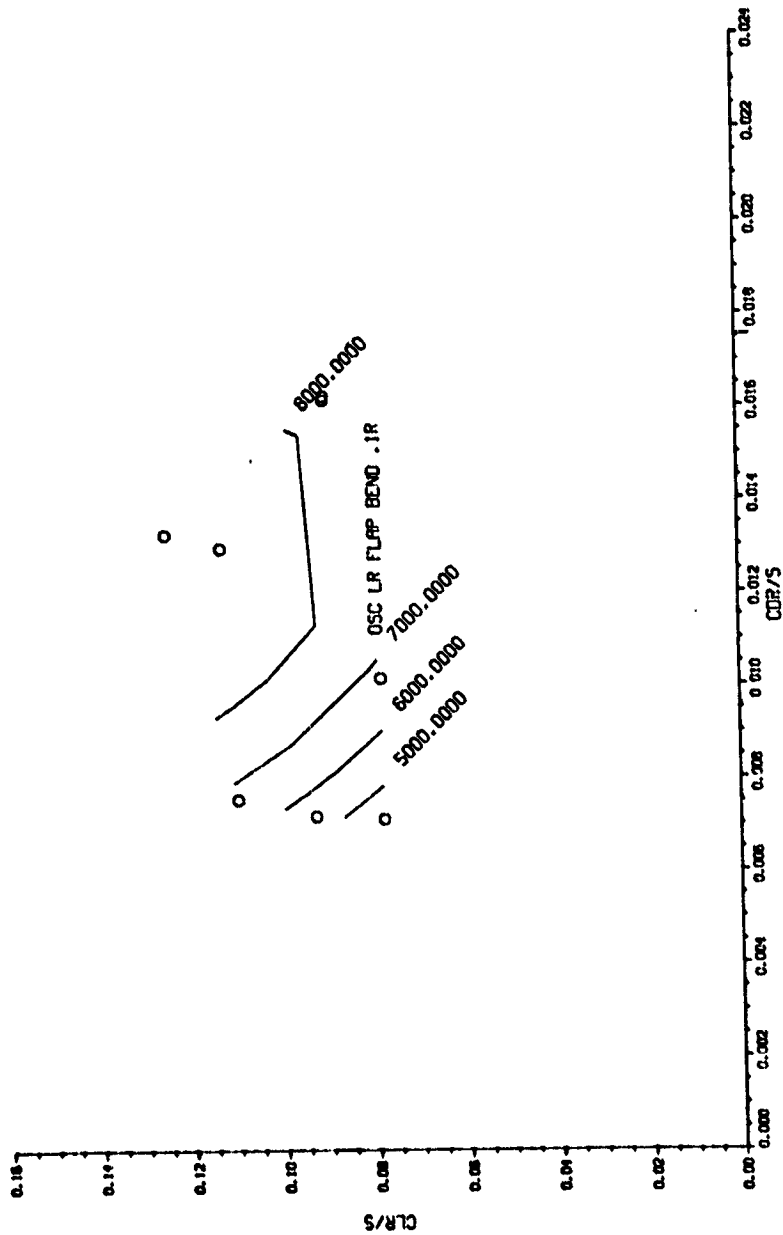


08/03/81
19:24:03

2

LOWER ROTOR OSC. NORMAL BENDING MOMENT .1R, FT-LBS
V/VR = .40

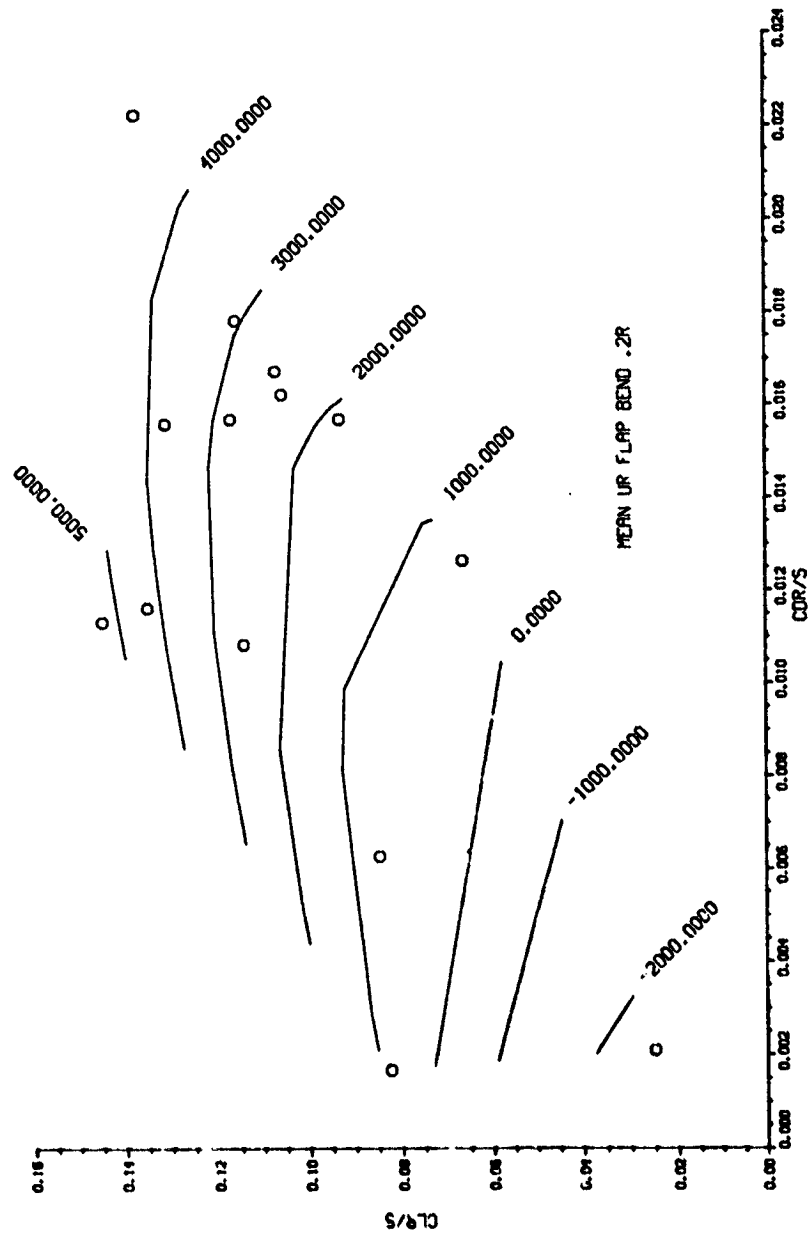
Cv = 6.841E-01



08/03/81
16:33:30
2

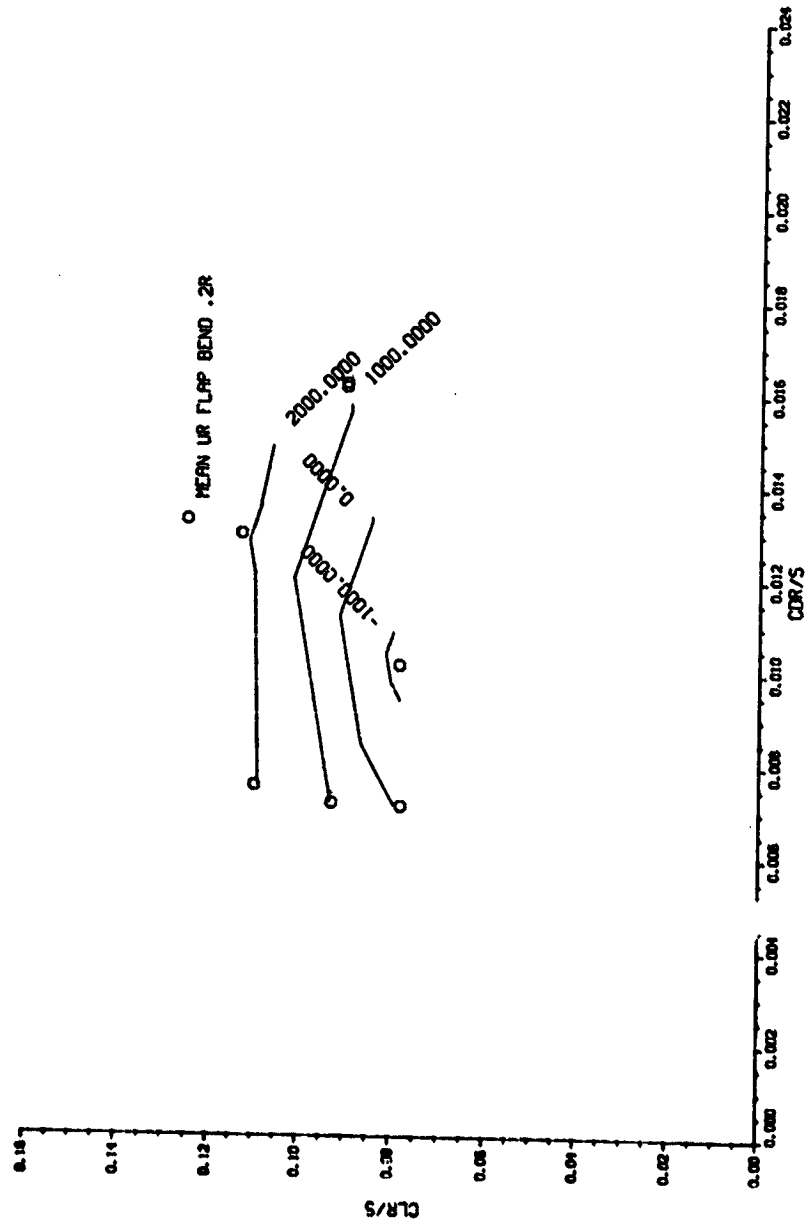
UPPER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/CR = .30

CV = -1.455E-02



UPPER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/QR = .40

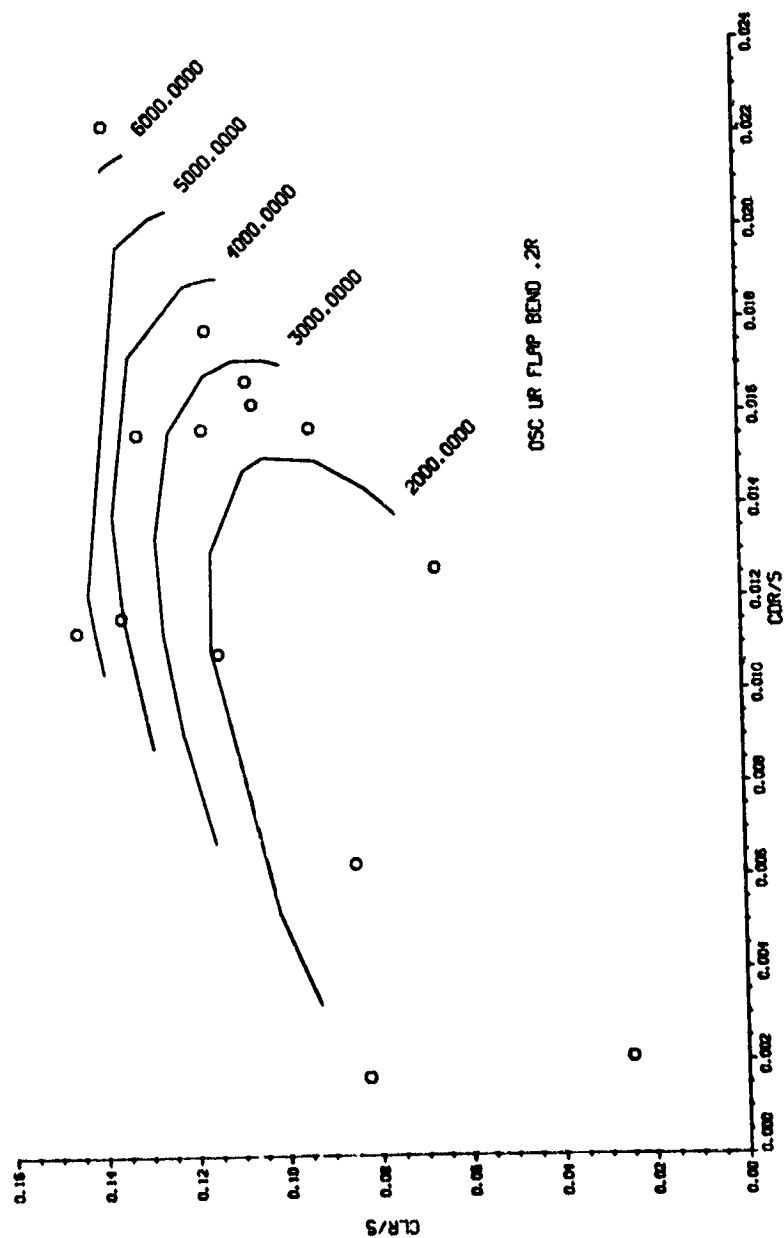
08/03/81
16:38:07
1



08/03/81
16:43:37
2

UPPER ROTOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/OR = .30

$\epsilon_v \rightarrow 1.859E-02$

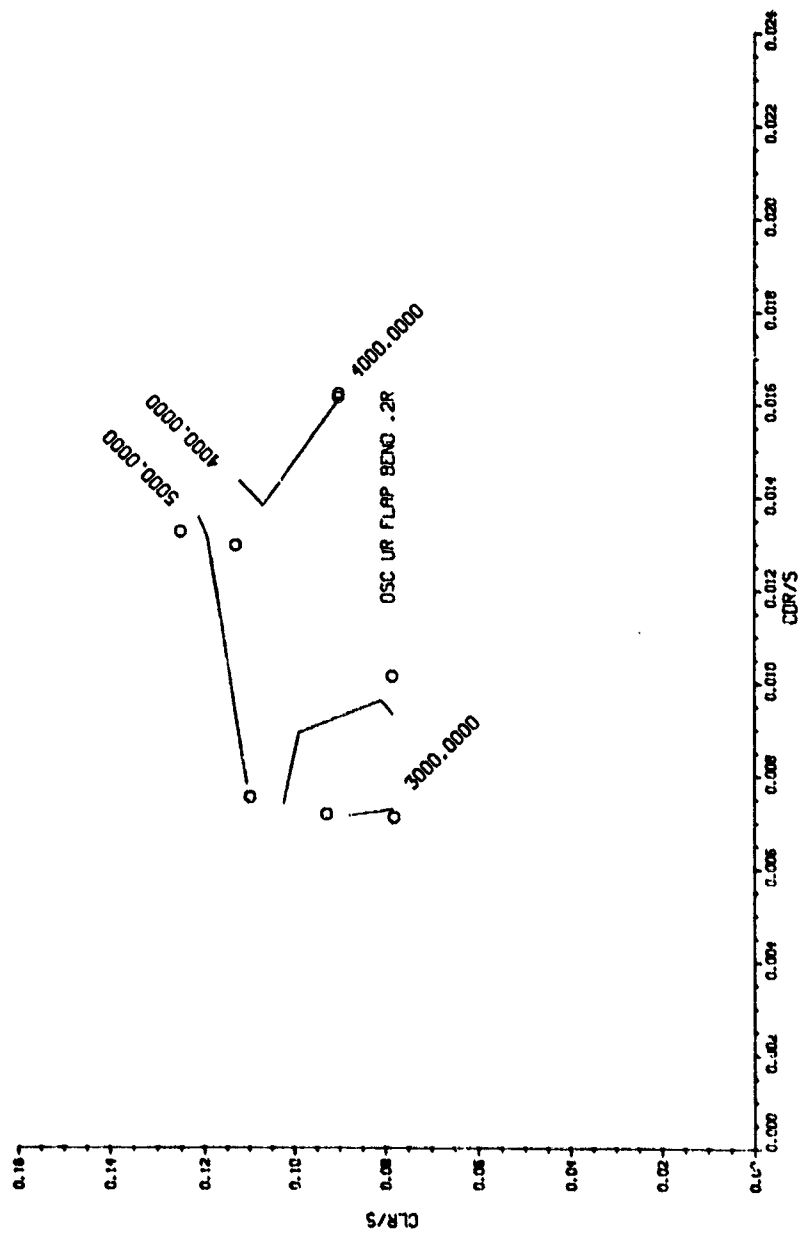


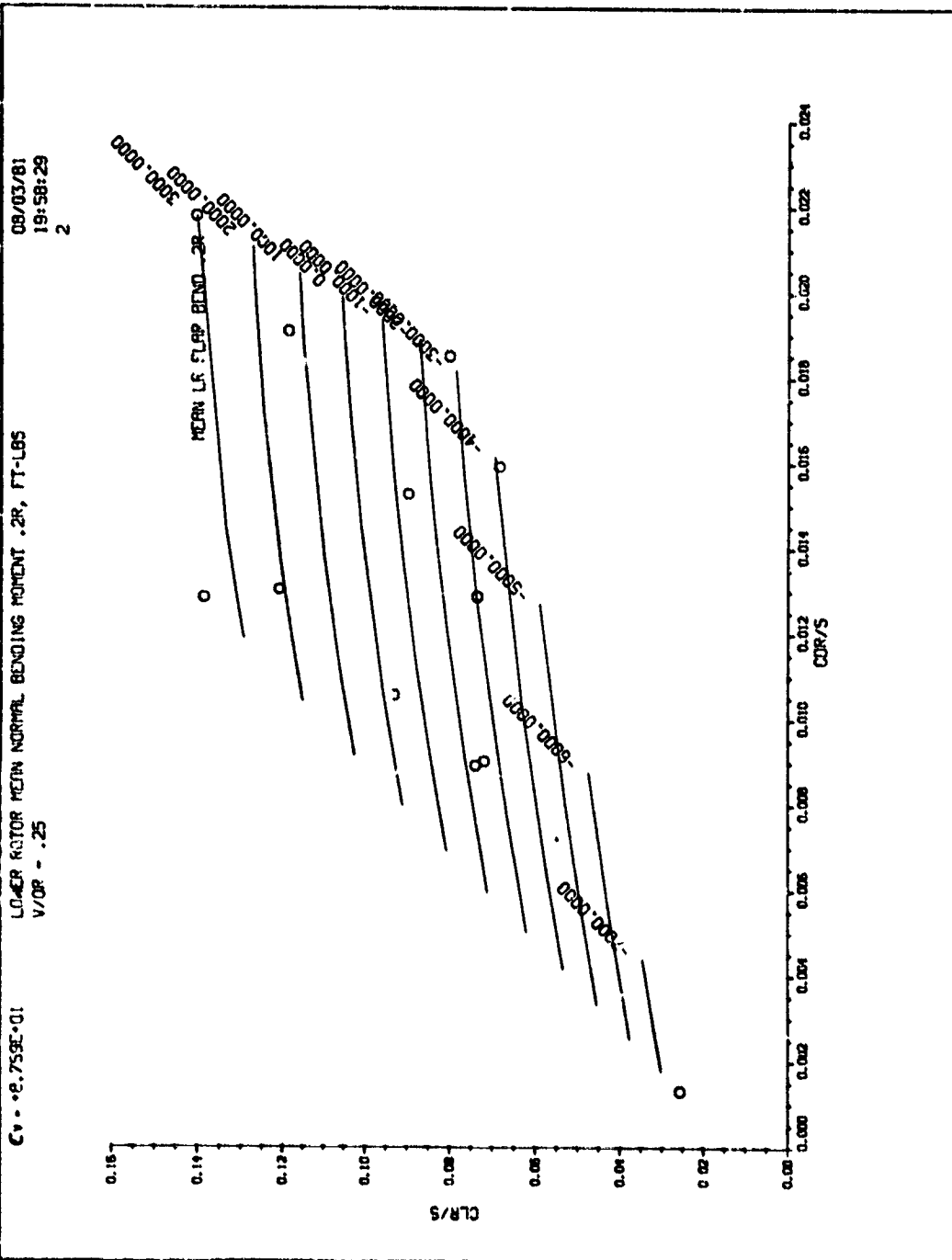
OSC UR FLAP BEND .2R

CV = +7.785E+01

UPPER ROTOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/OP = .40

08/03/81
16:46:59
2

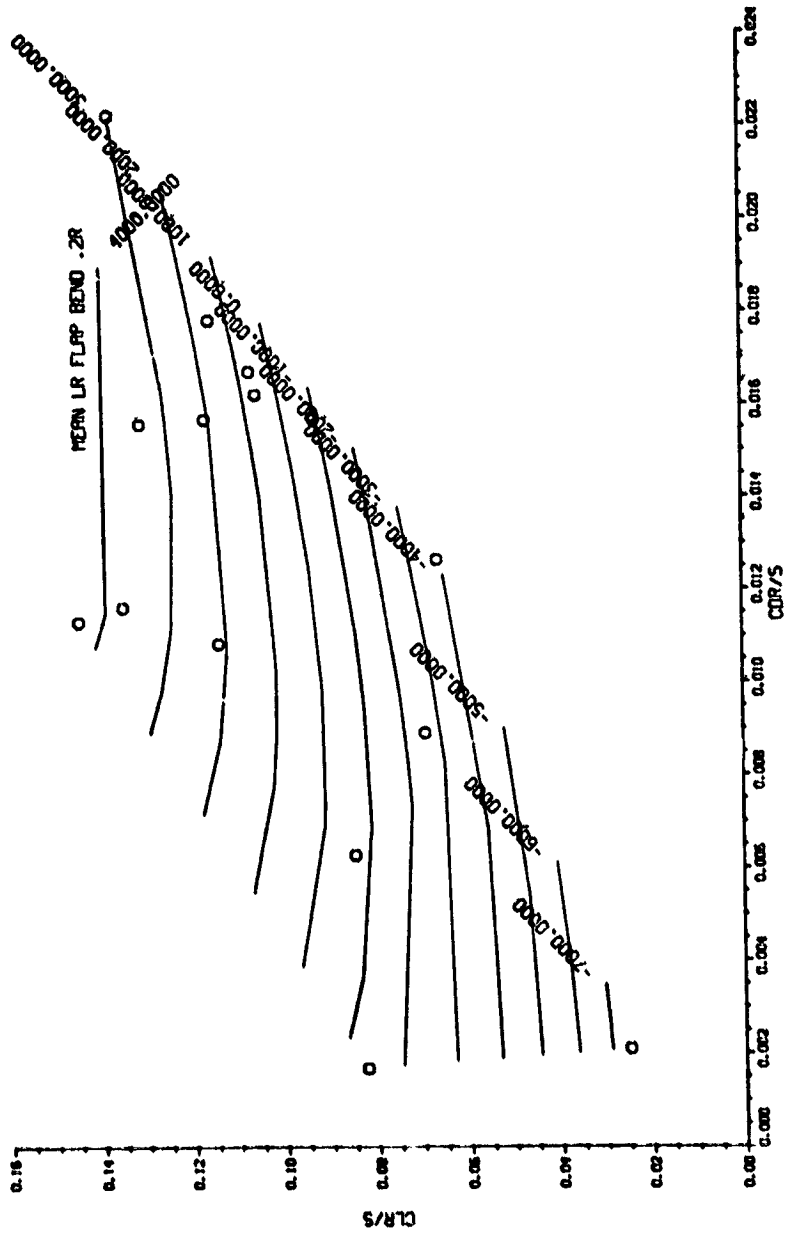




08/03/81
20:05:44
2

LOWER ROTOR MEAN NORMAL BENDING MOMENT .28, FT-LBS
V/OR = .30

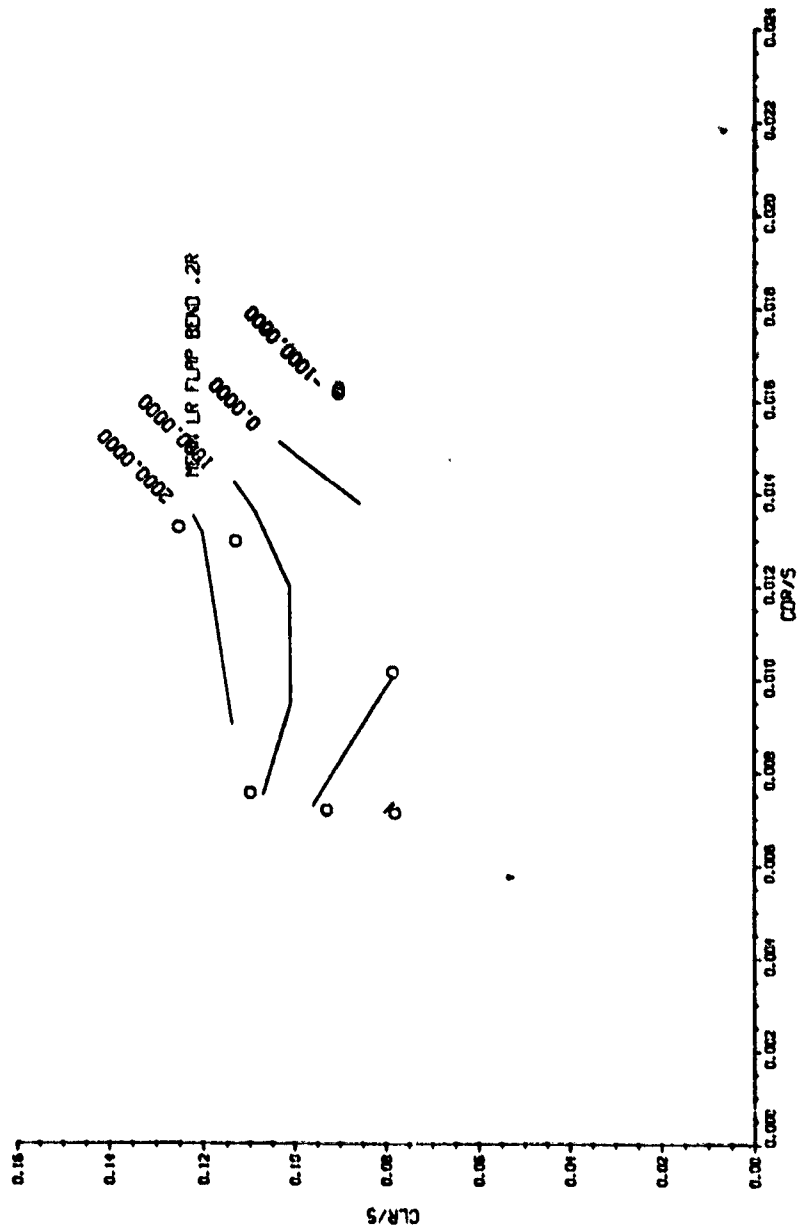
$\epsilon = -1.734E-02$



08/03/81
20:15:52
2

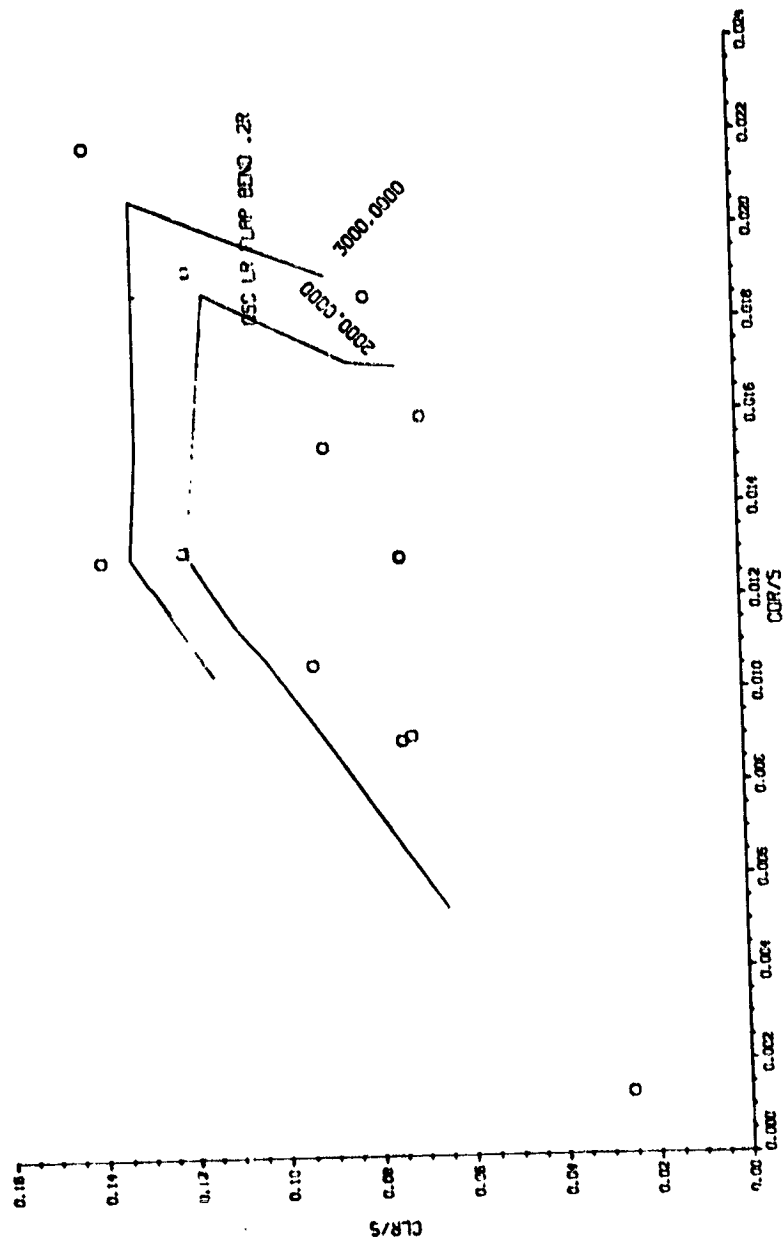
LOWER ROTOR MEAN NORMAL BENDING MOMENT .2R, FT-LBS
V/DR = .40

Cv = +1.692E+01



09/03/81
17:50:02
1

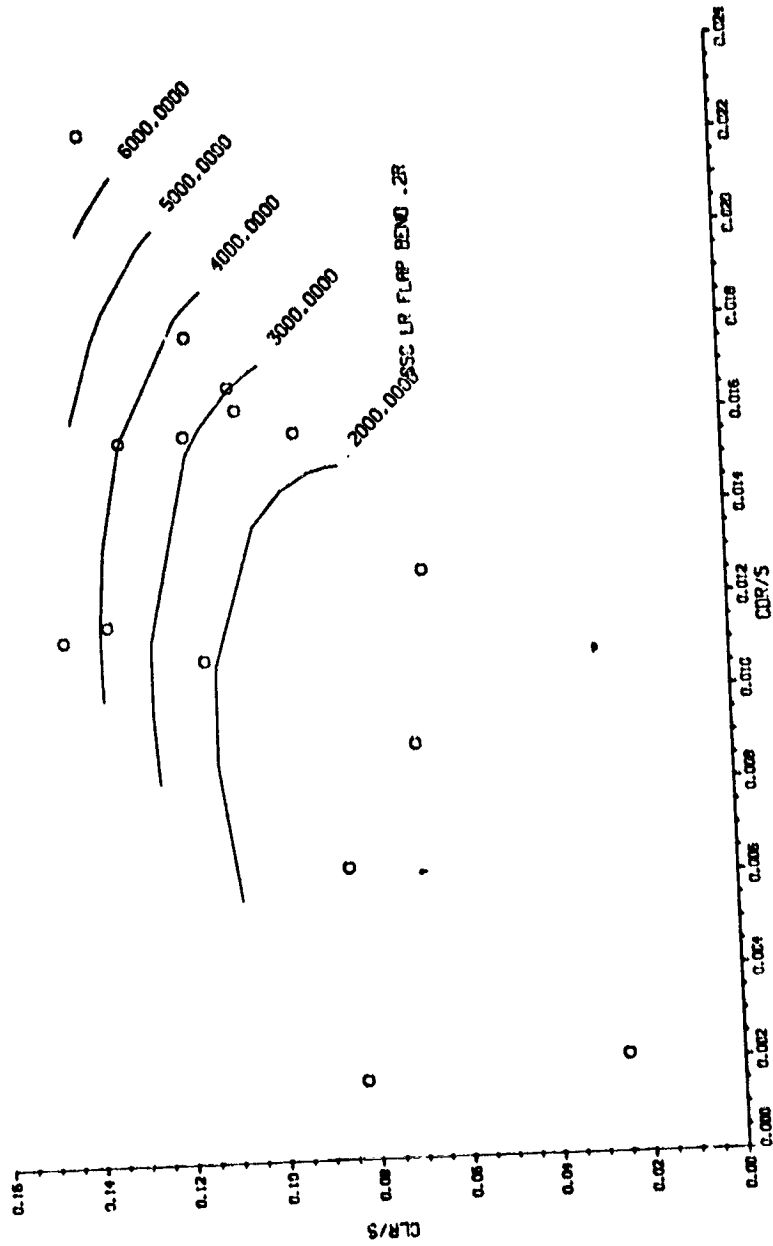
LOWER FLOOR OSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/CR = .25



08/03/81
17:46:04
2

LOWER PLOTOR GSC. NORMAL BENDING MOMENT .2R, FT-LBS
V/OP = .30

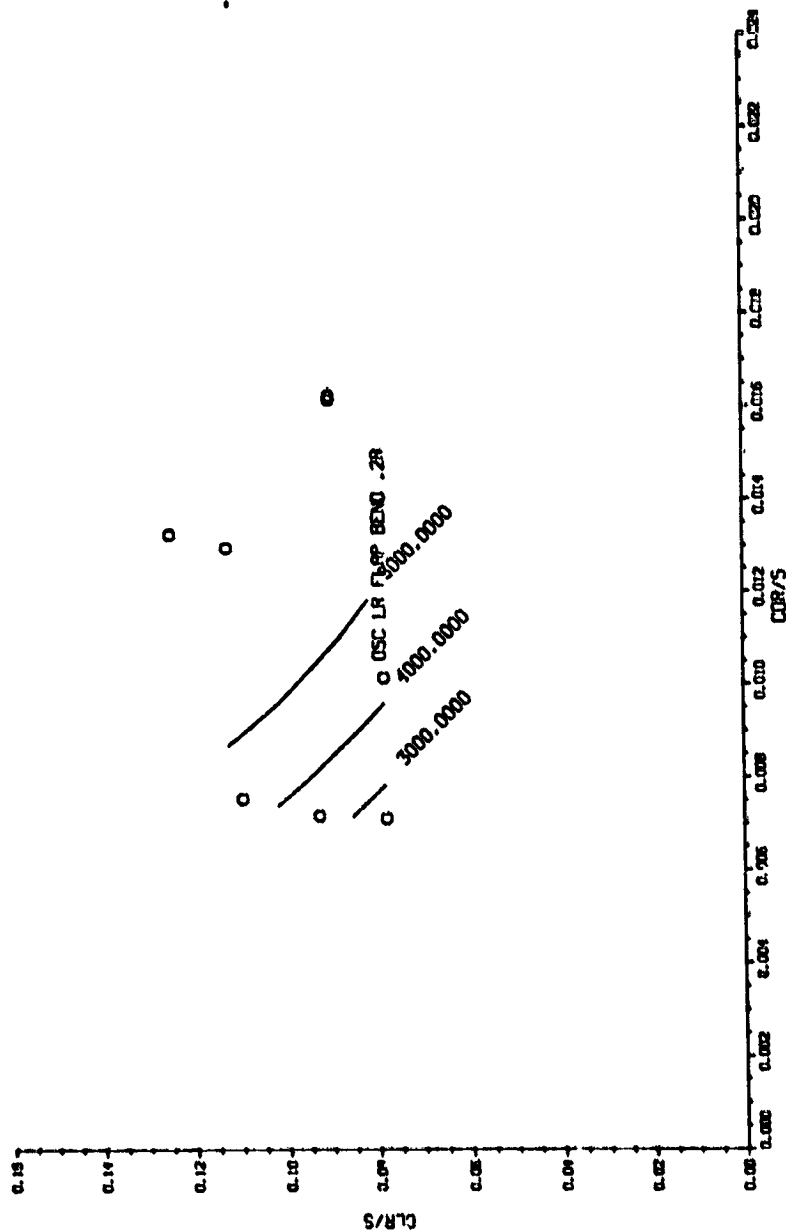
$\epsilon_v = 1.378E-02$



02/03/81
20:24:37
2

LOWER ROTOR OSC. NORMAL BENDING MOMENT .28. FT-LBS
V/CR = .40

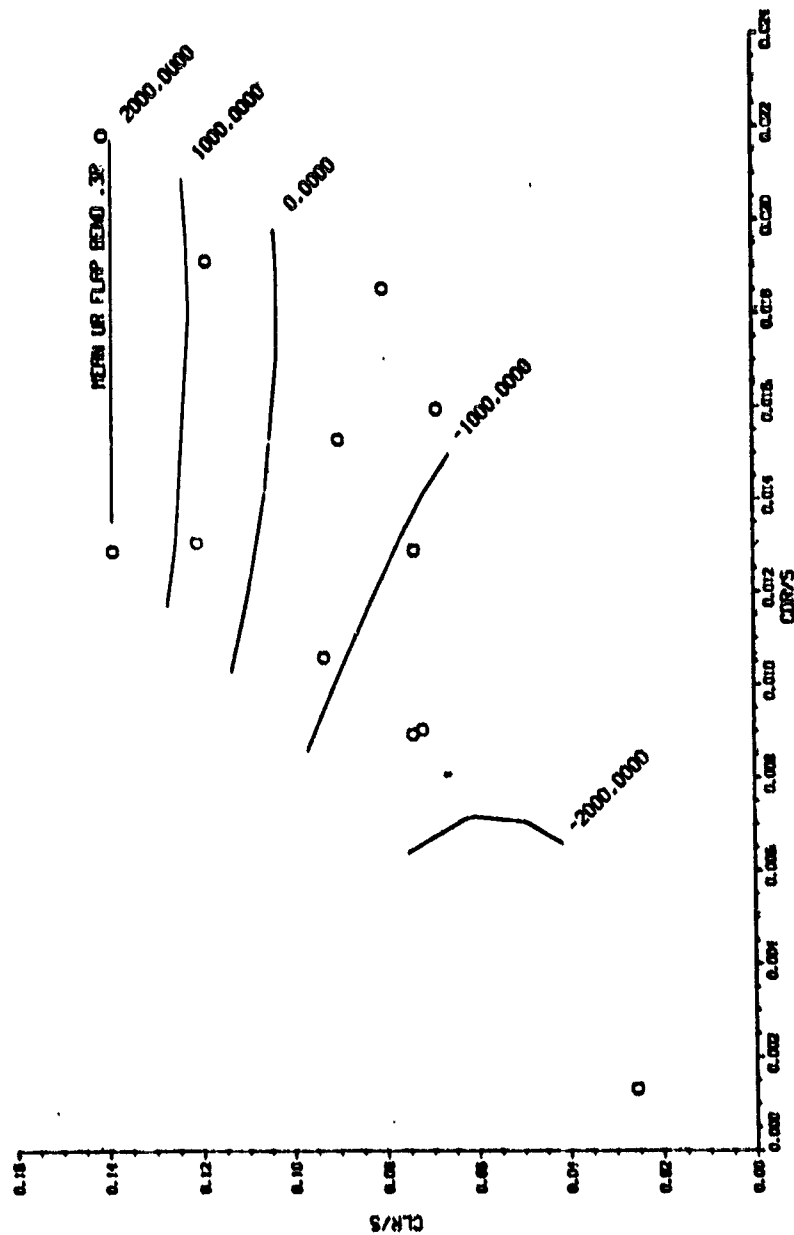
$C_v = 4.381E-01$



08/06/81
19:37:05
2

UPPER MOTOR MEAN NORMAL BENDING MOMENT .3P, TT-LBS
V/CR -.25

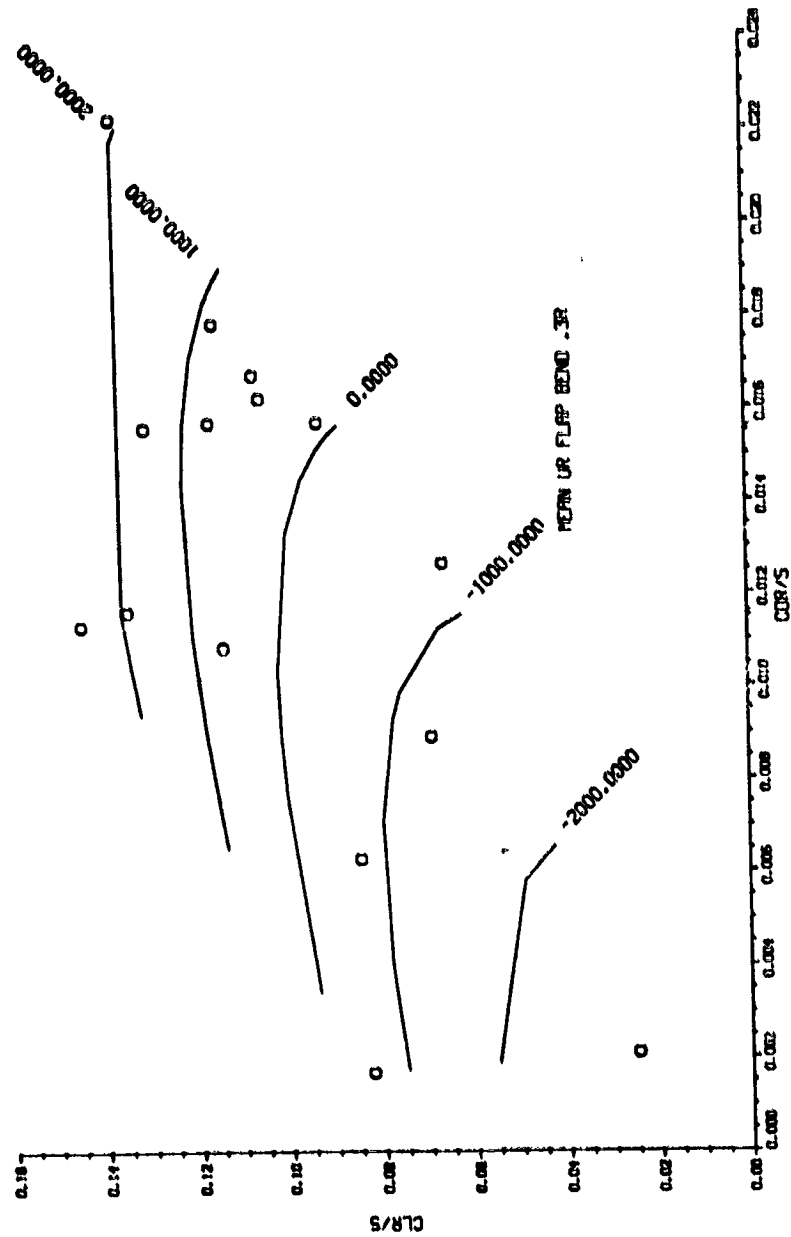
$\epsilon_v \rightarrow 6.379E-01$



02/05/81
19:52:40
2

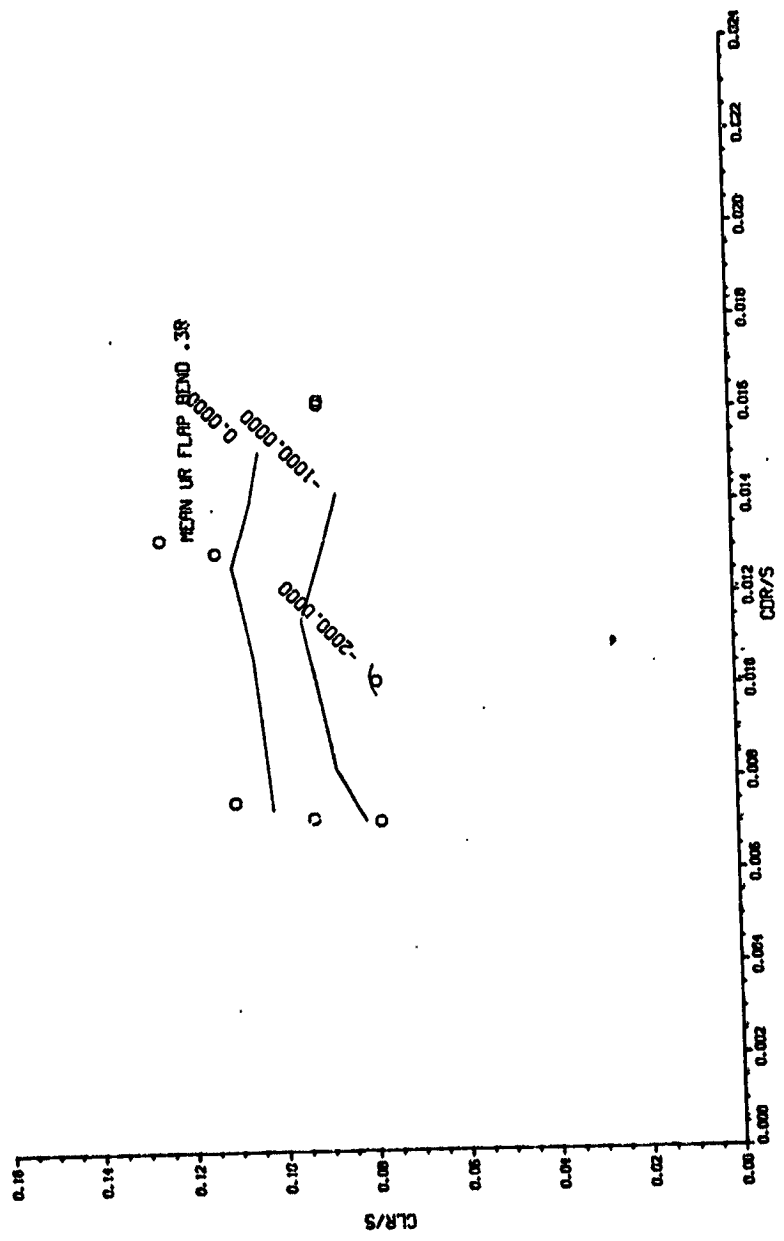
UPPER ROTOR MEAN NORMAL BENDING MOMENT .30, FT-LBS
V/CR = .30

CV = .9, 233E-01

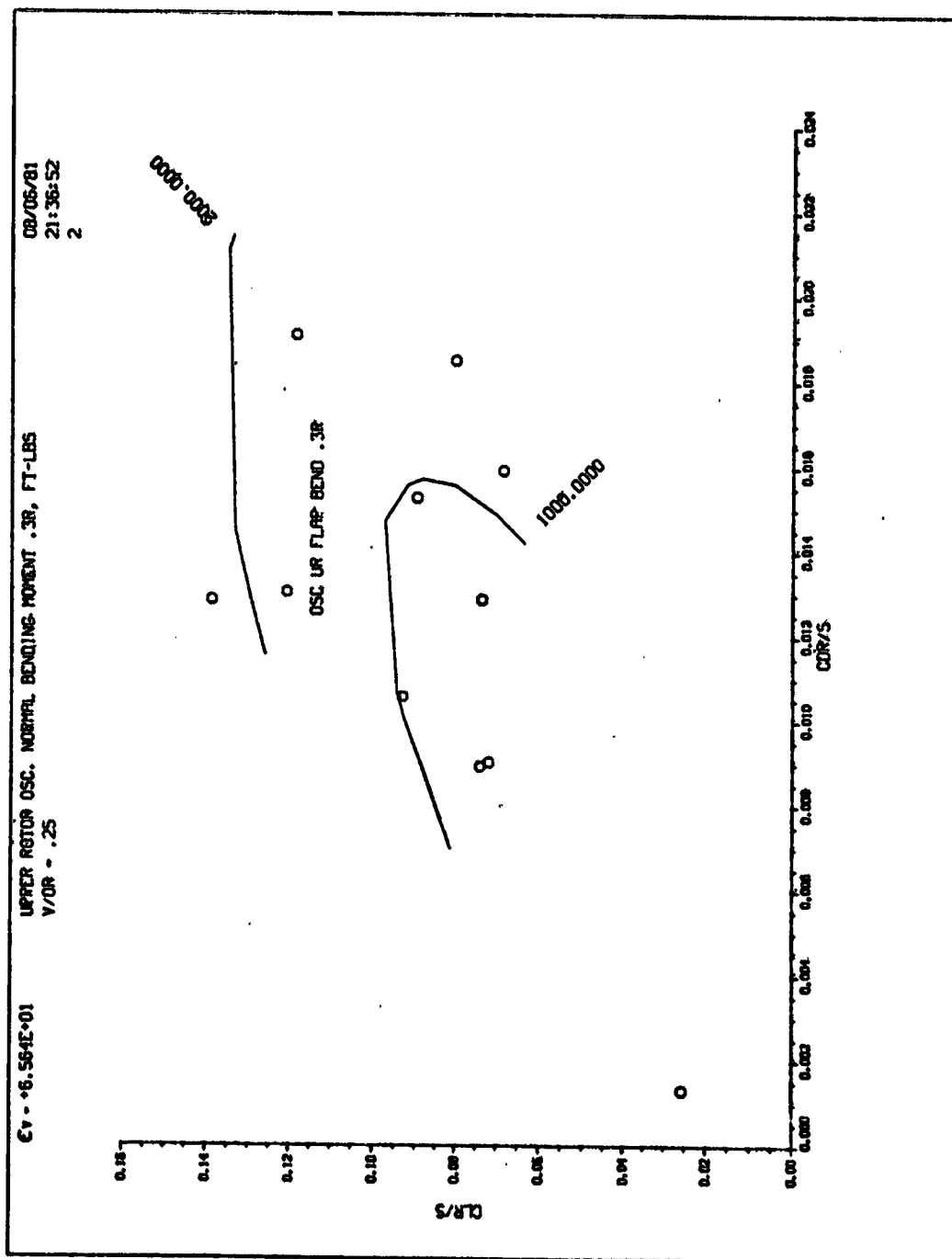


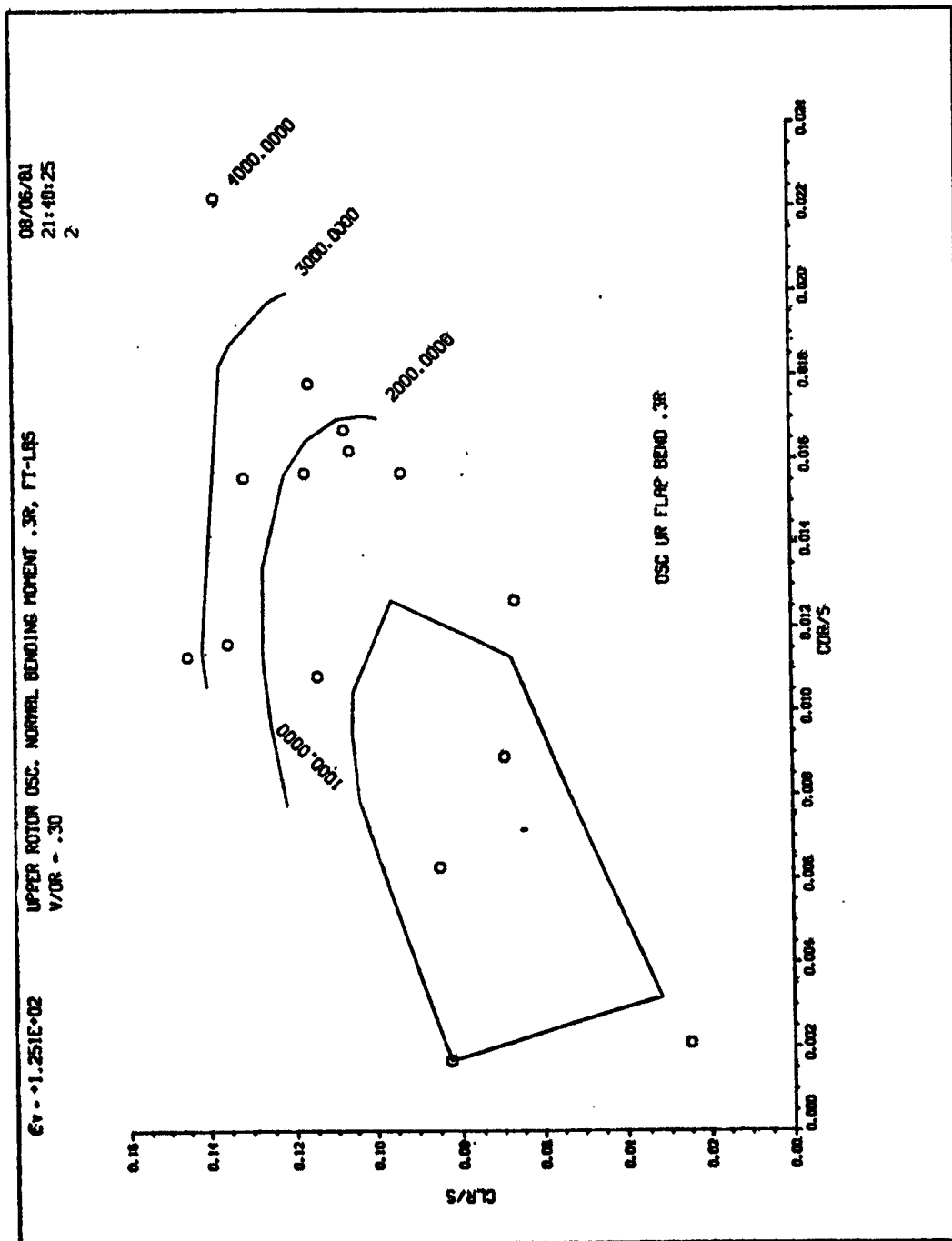
08/05 8)
21:47:44
1

UPPER ROTOR MEAN NOETRAL BENDING MOMENT .38 FT-LBS
V/OR - .40



5-4

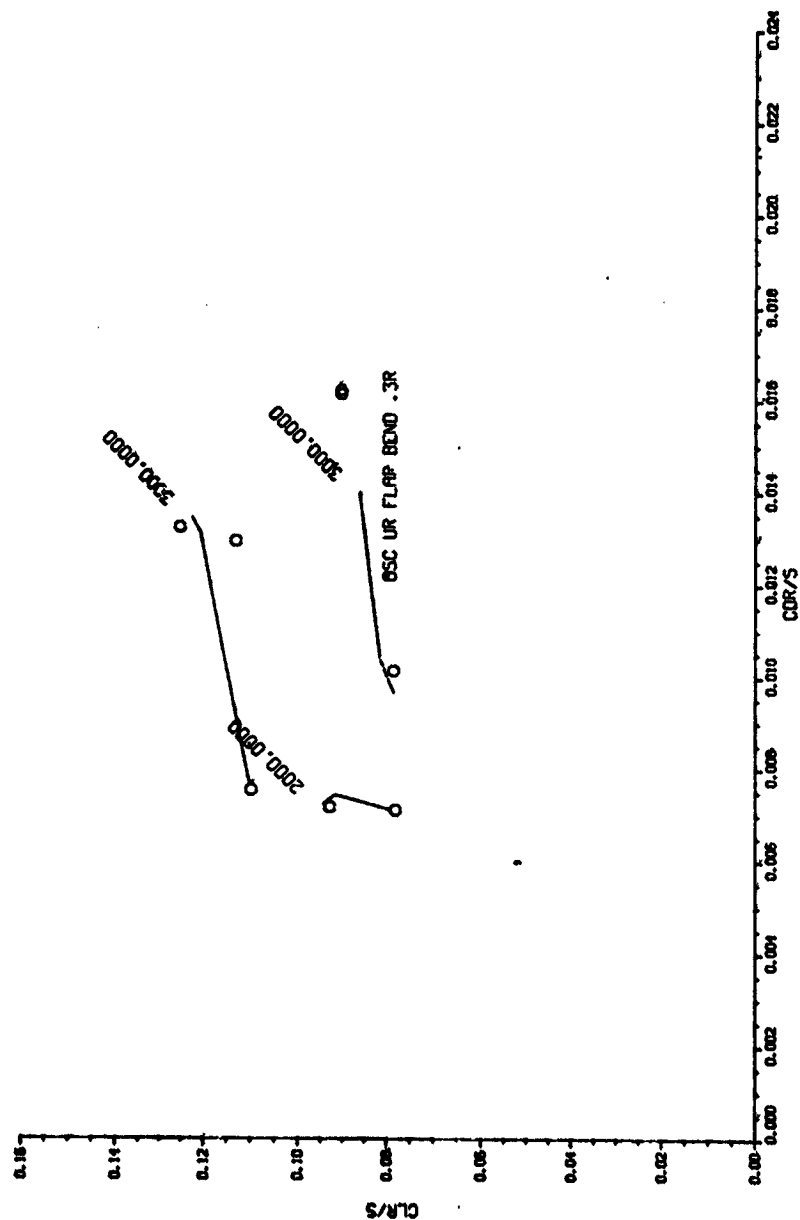


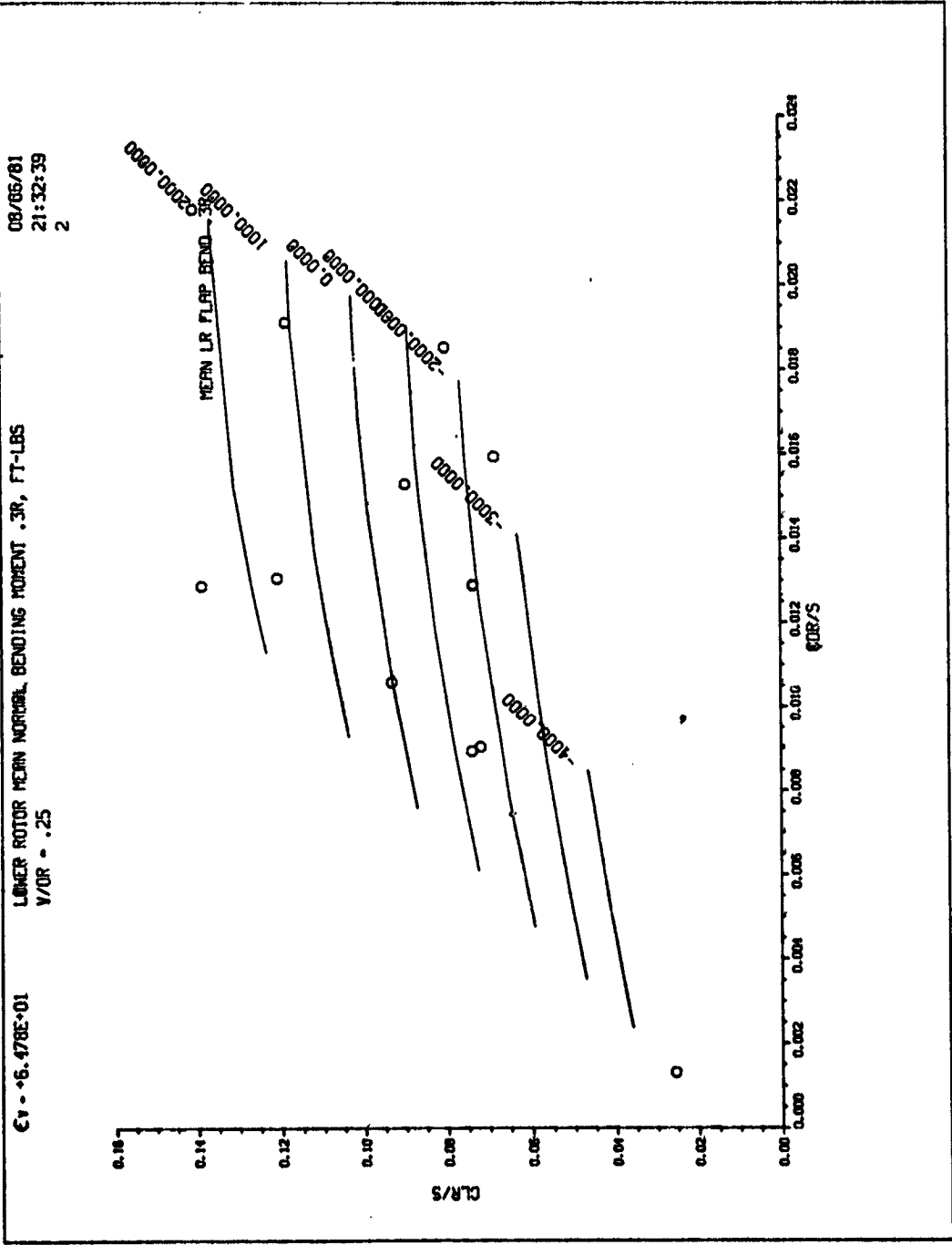


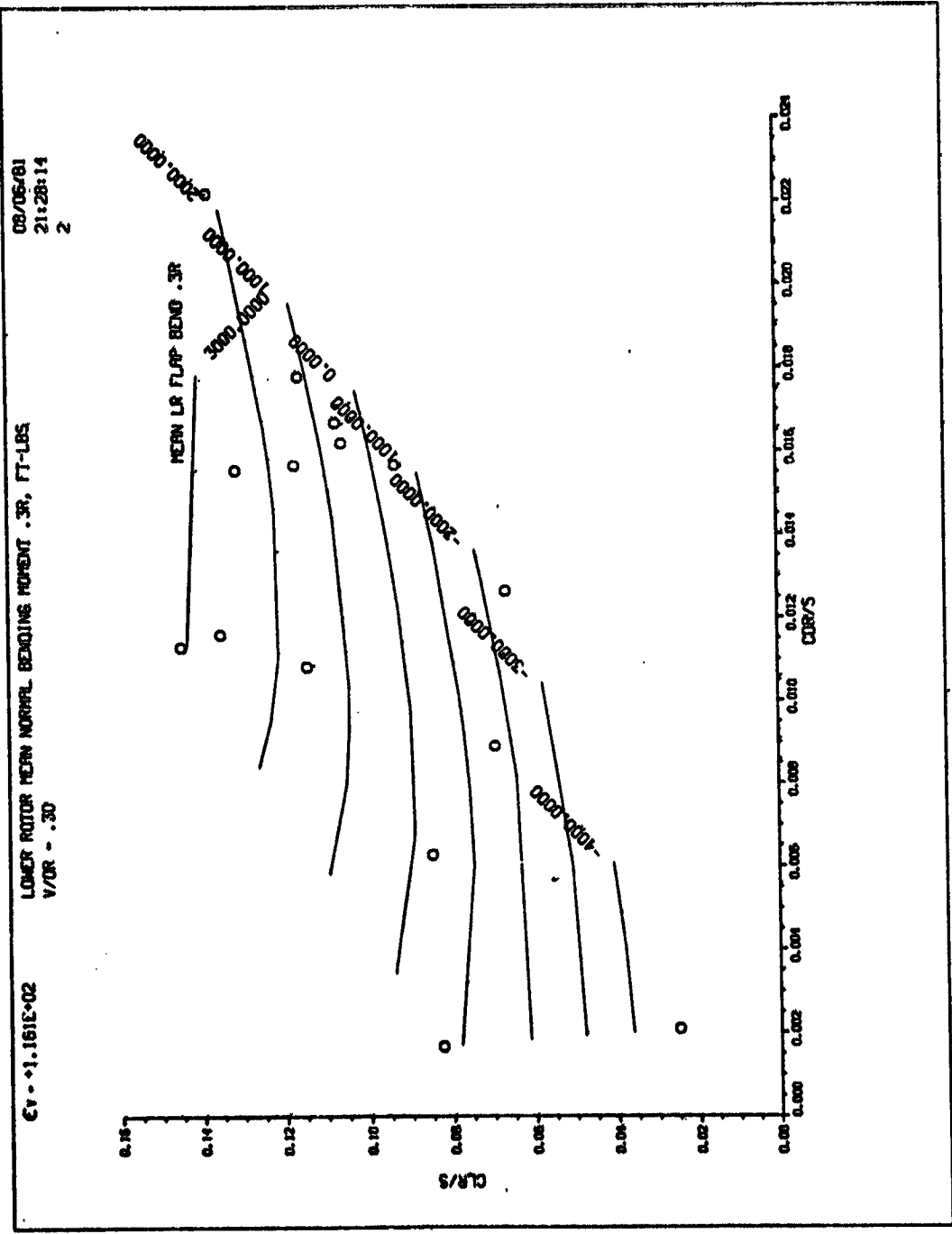
08/06/81
21:44:07
2

UPPER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/DK = .40

Cv = -4.70E-01



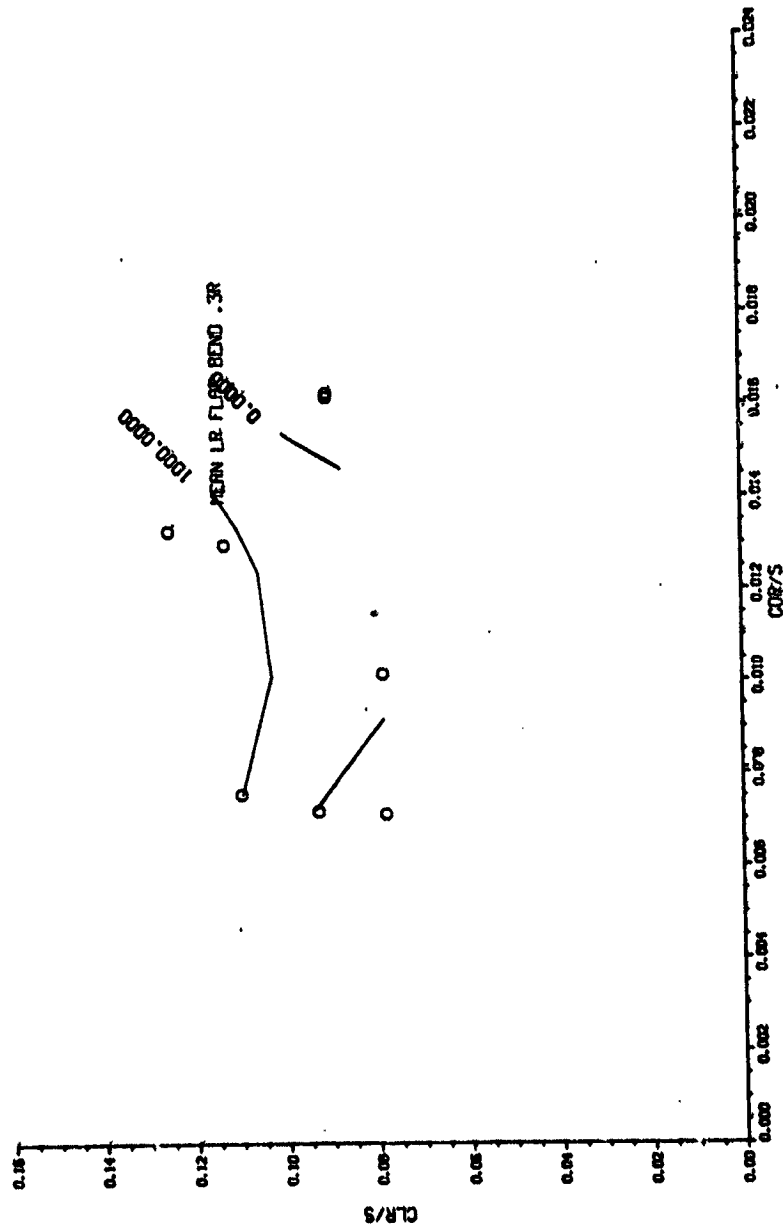




08/05/81
21:24:30
2

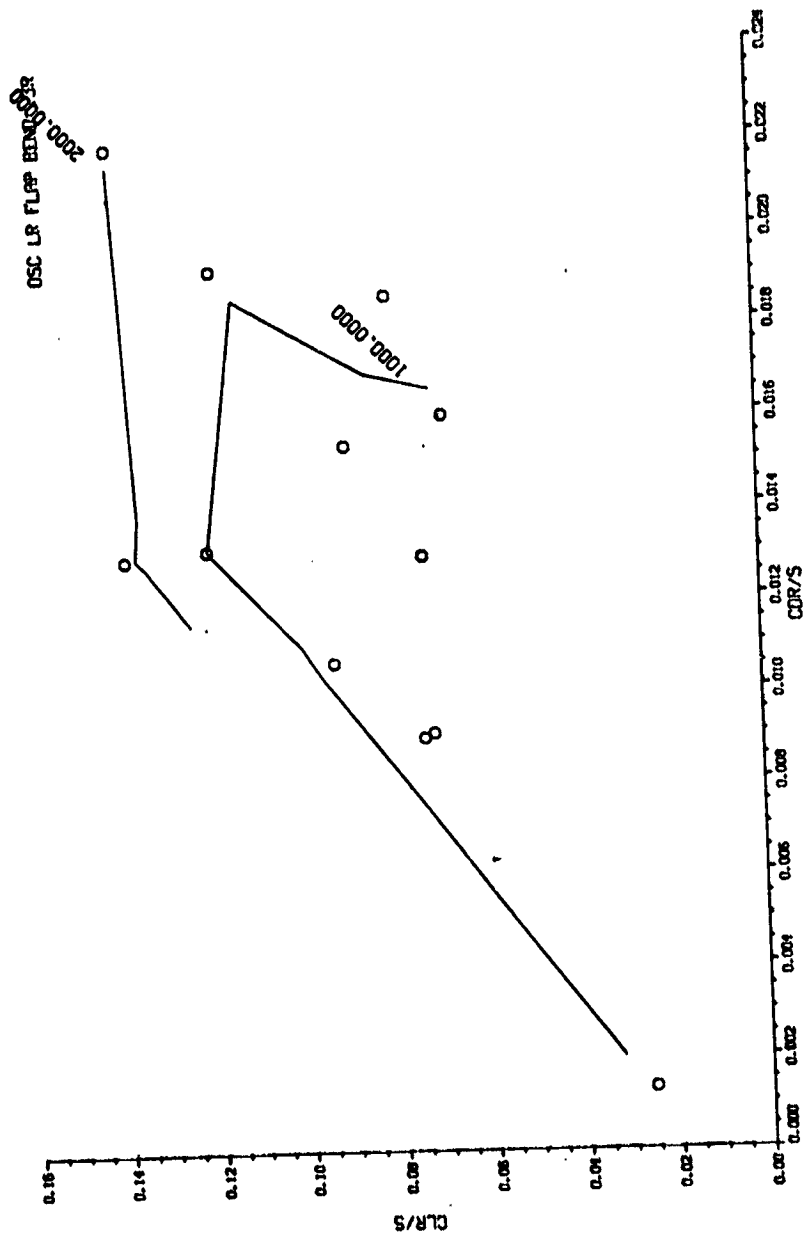
LOWER ROTOR MEAN NOBLE BENDING MOMENT .3A, FT-LBS
V/8R - .48

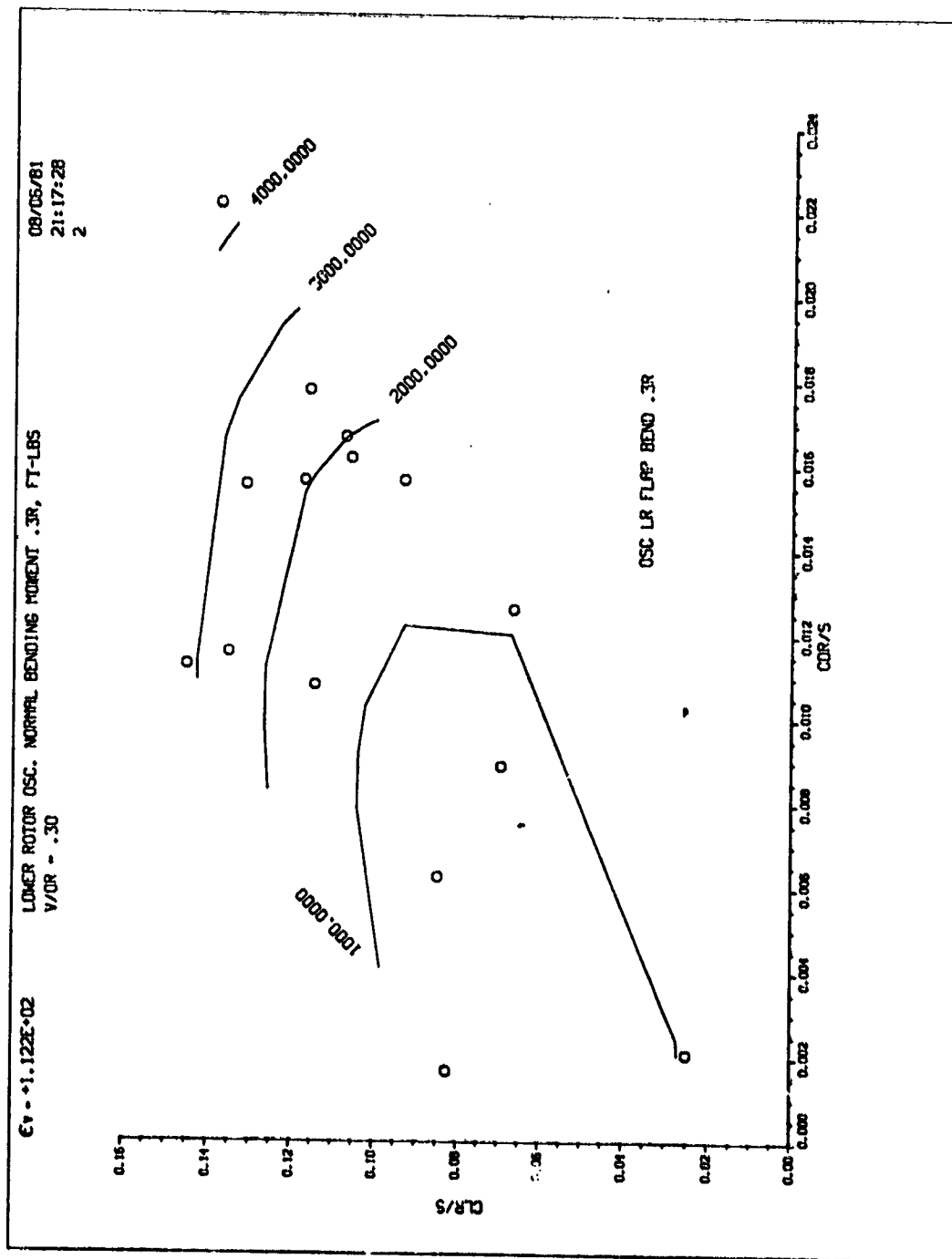
Cv = +1.252E+01



08/05/81
21:13:52
1

LOWER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/OR = .25

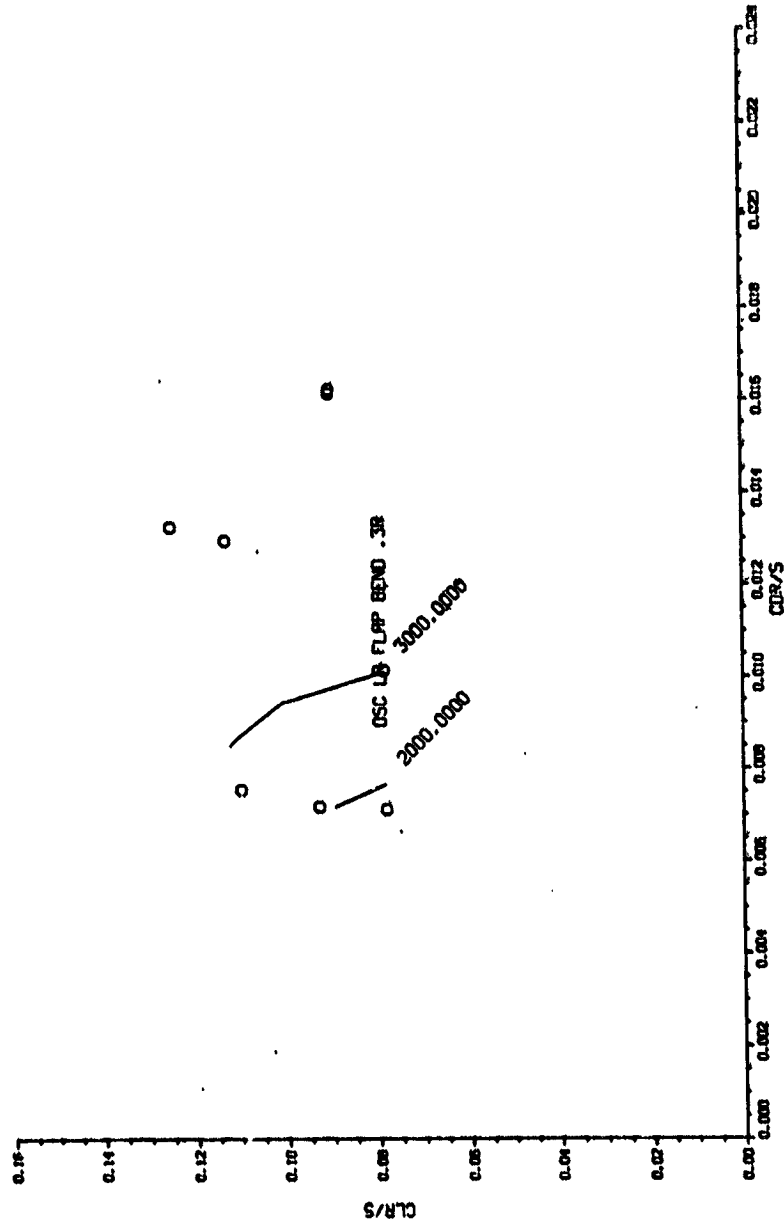




08/05/81
21:20:43
2

LOWER ROTOR OSC. NORMAL BENDING MOMENT .3R, FT-LBS
V/08 - .40

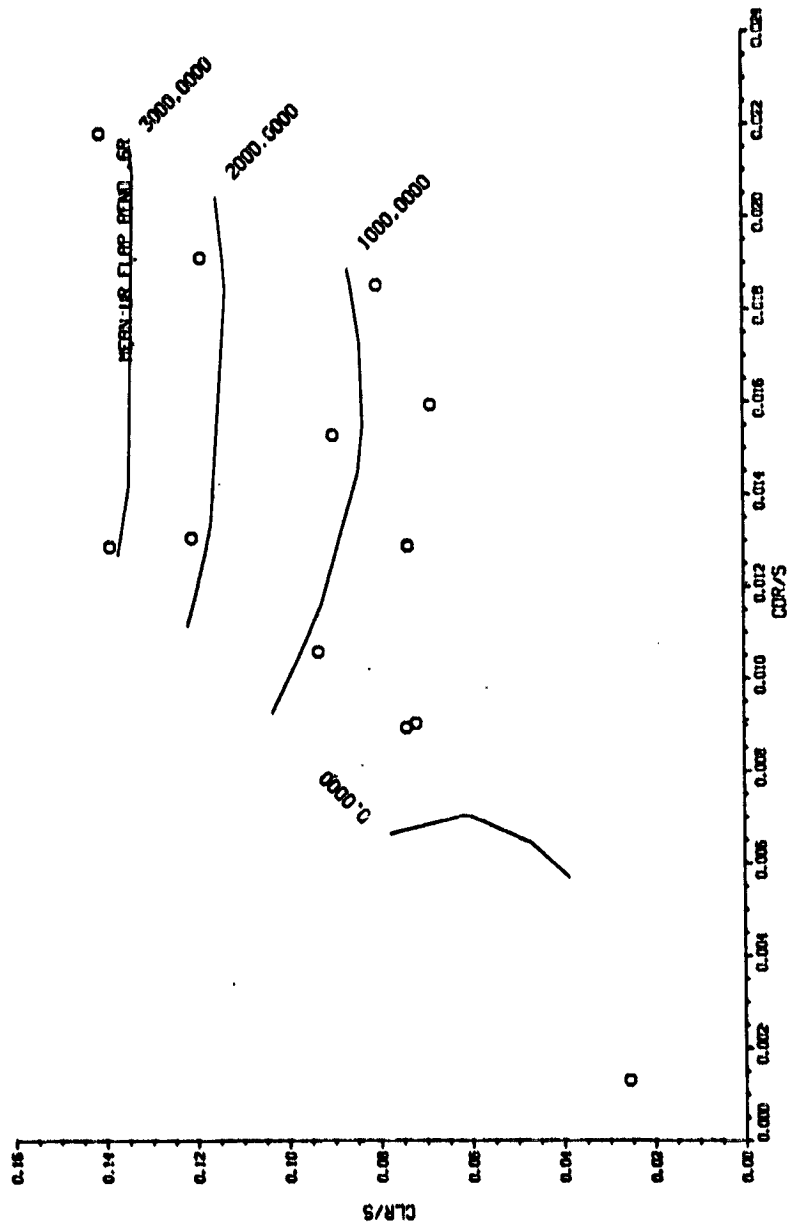
Cv - +3.404E+01



08/06/81
21:10:19
2

UPPER ROTOR MEAN NORMAL BENDING MOMENT .GR, FT-LES
V/DK = .25

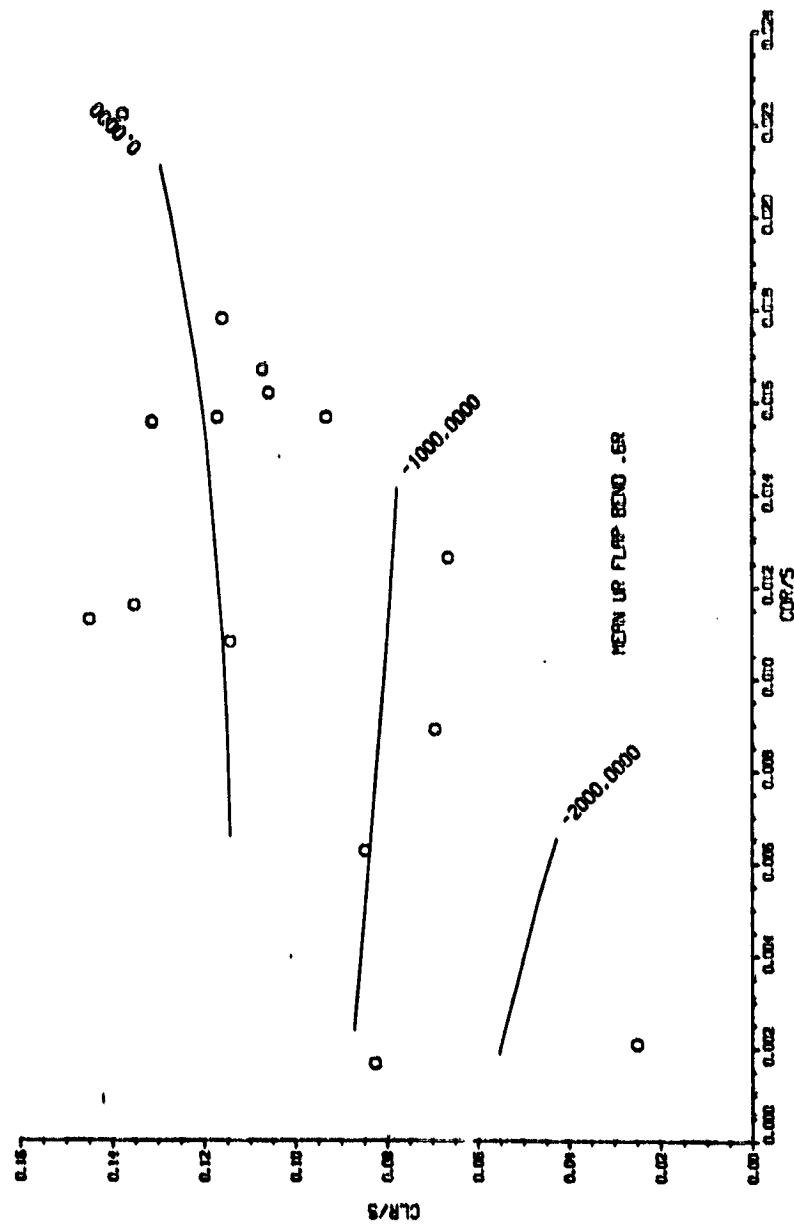
Ev = +4.850E+01



03/05/81
21:05:22
2

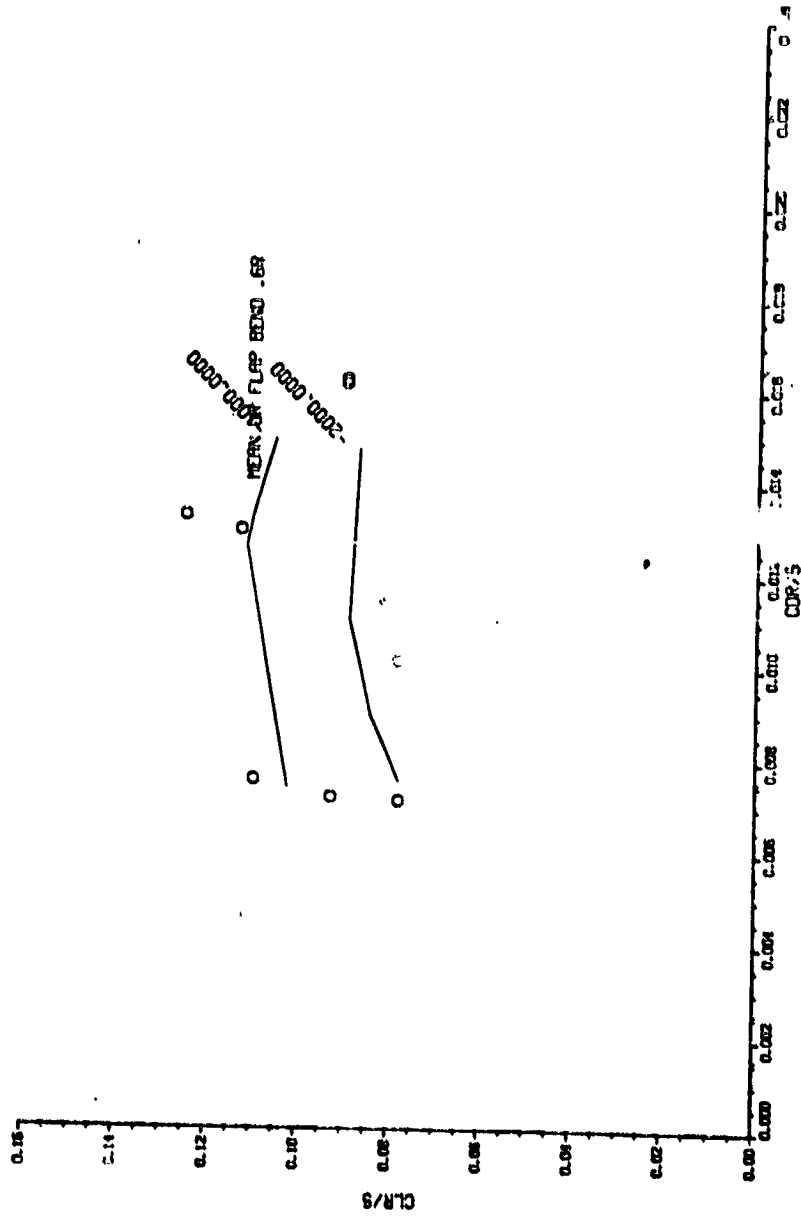
UPPER ROTOR MEAN NORMAL BENDING MOMENT .68, FT LBS
V/DR - .30

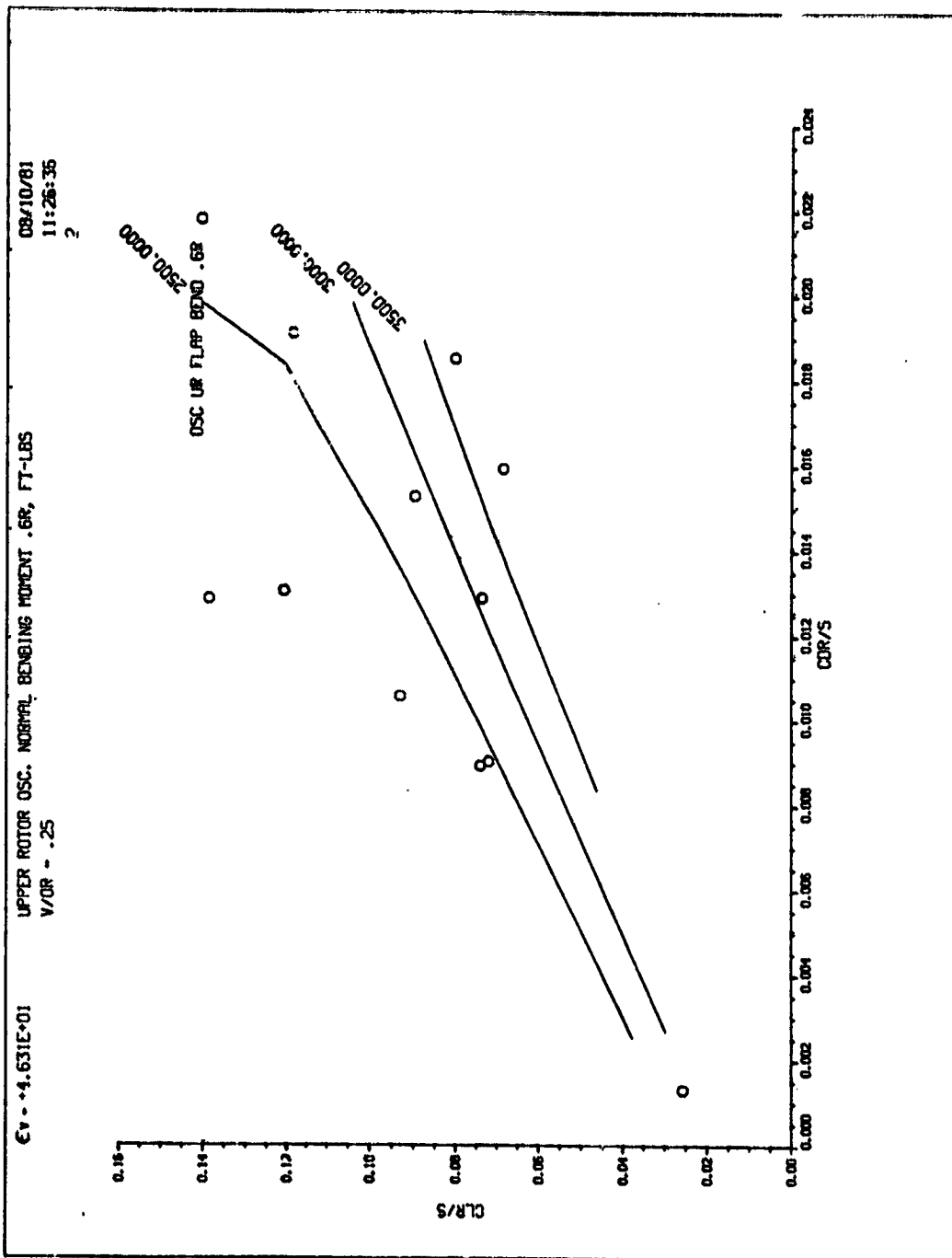
EV - +1.488E+02



UPPER ROTOR MEAN NORMAL BENDING MOMENT .6R, FT-LBS
V/OR - .40

02/05/20
21:02:24
2

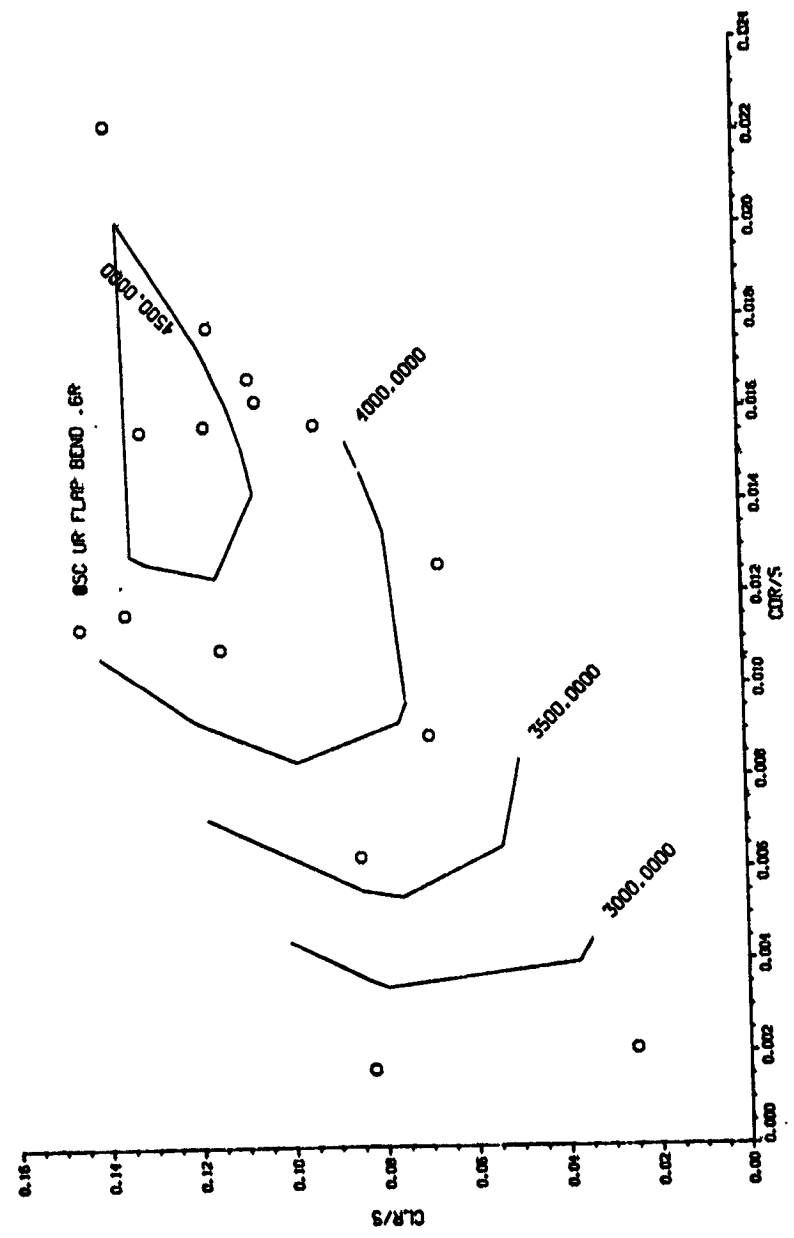




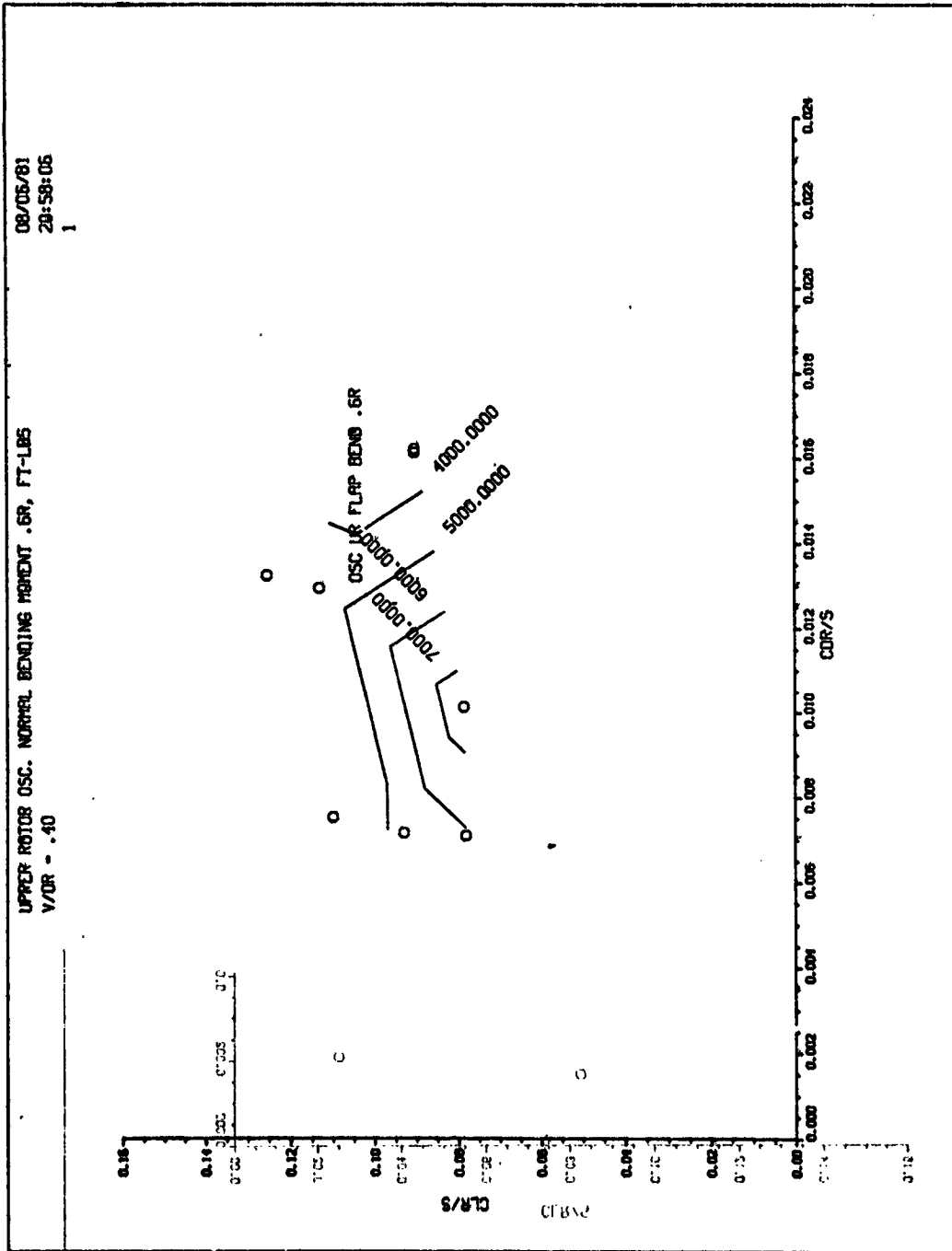
08/10/81
11:33:52
2

UPPER ROTOR OSC. NORMAL BENDING MOMENT .6R, FT-LBS
V/OR = .30

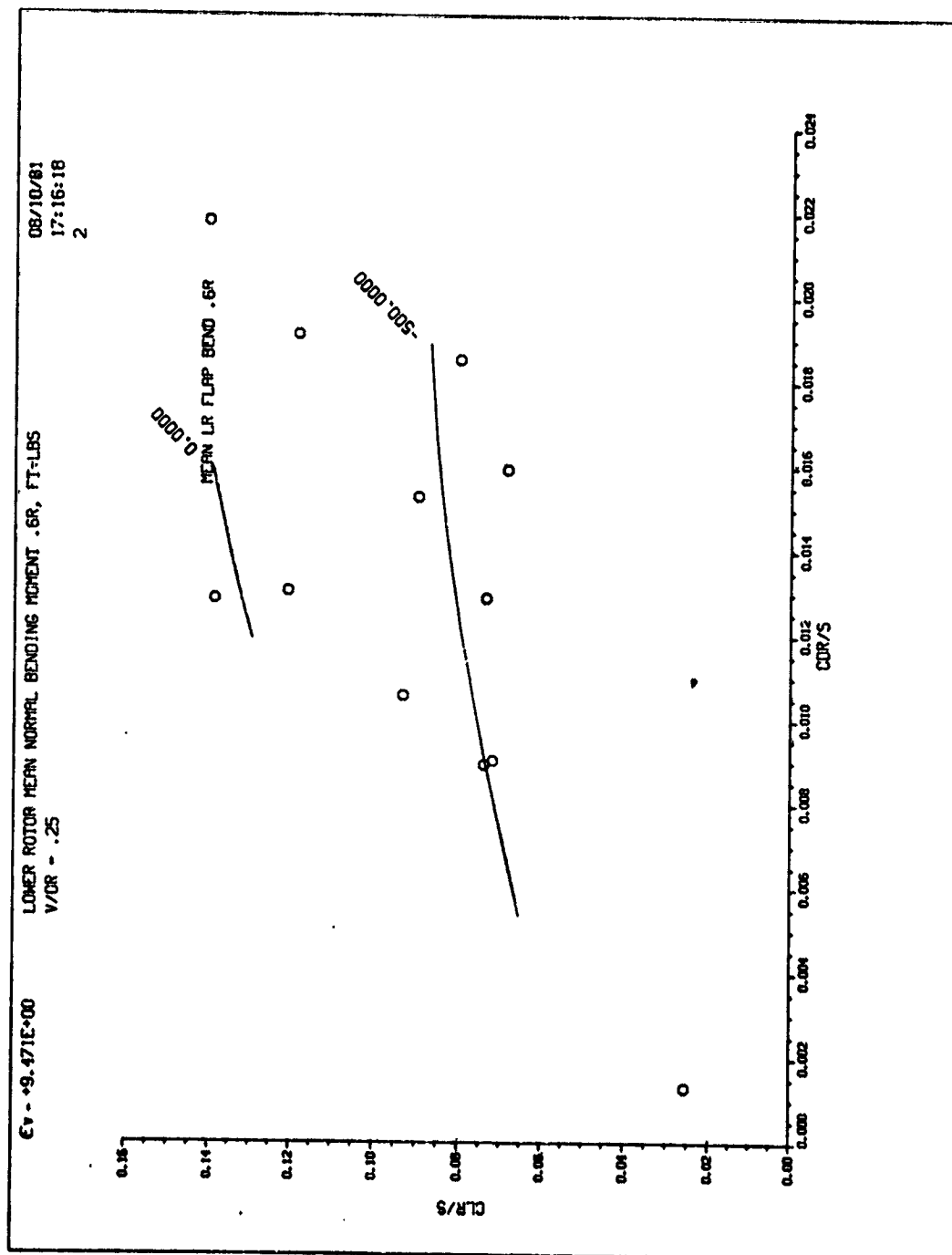
EV = +1.631E+02

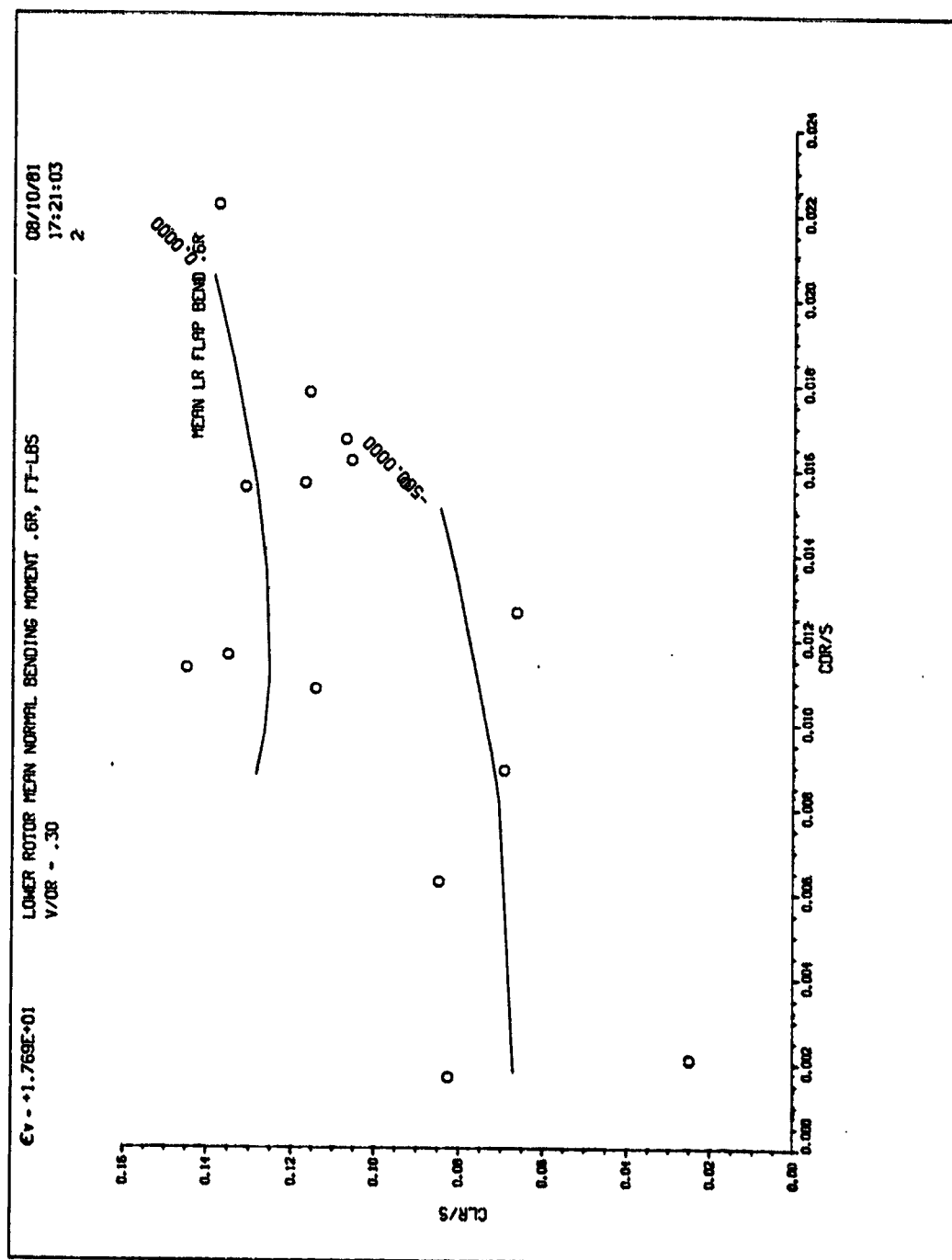


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67-11

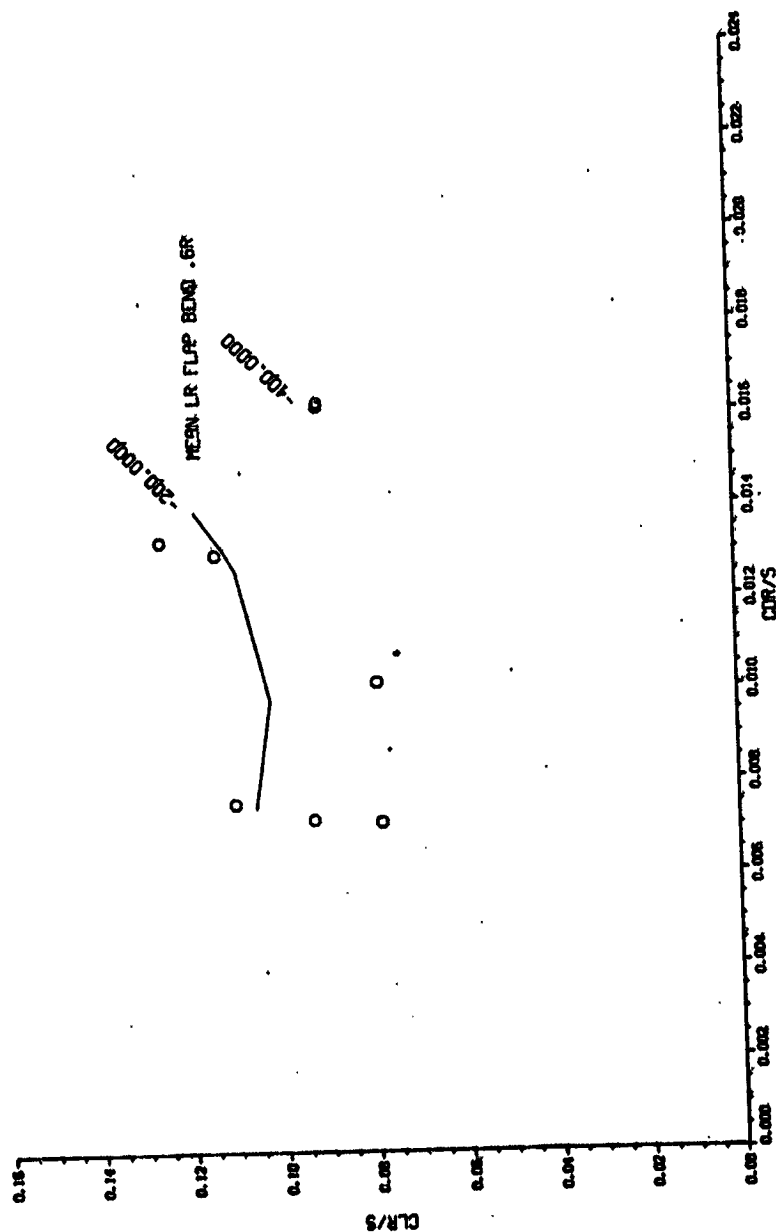


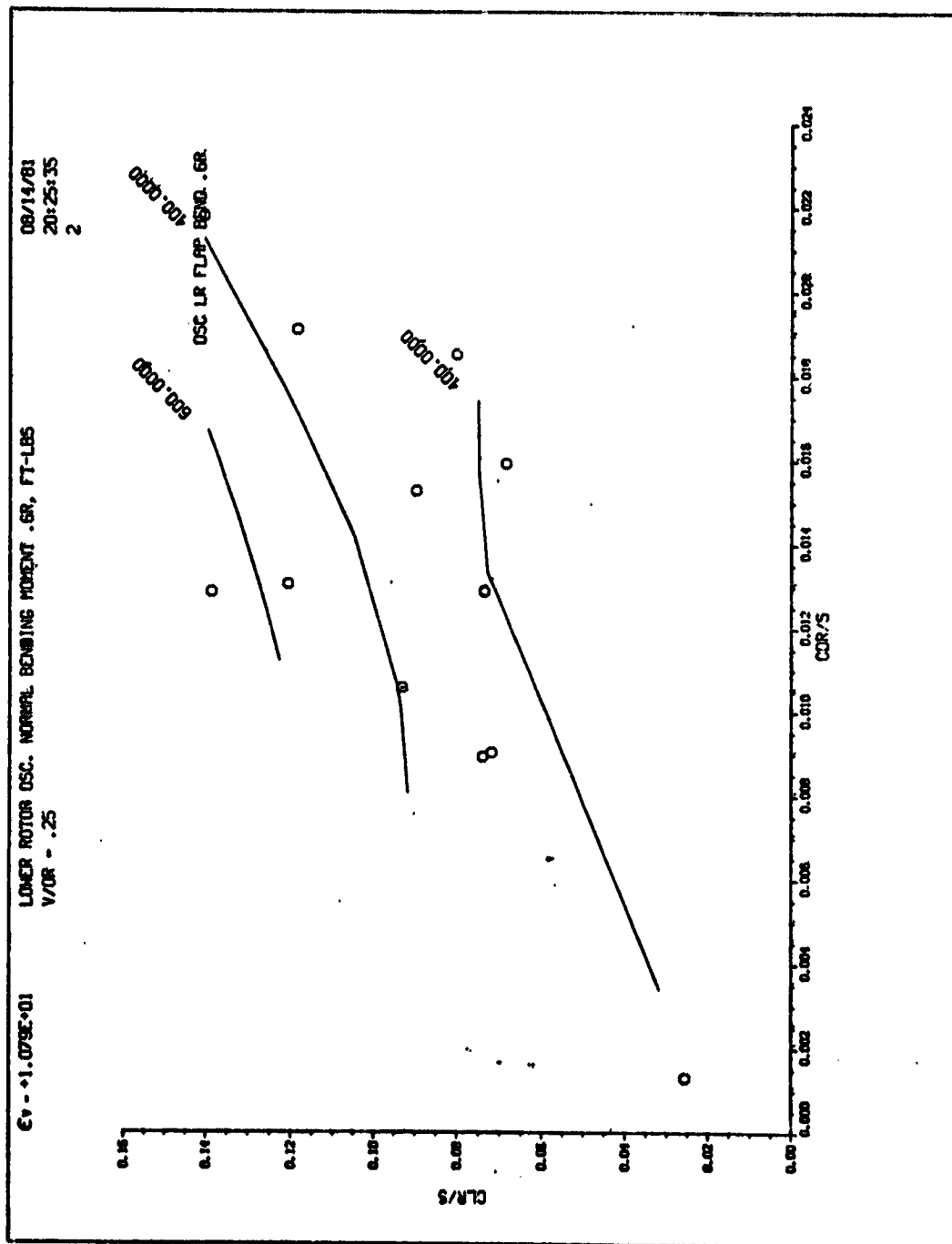


08/14/81
20:33:03
2

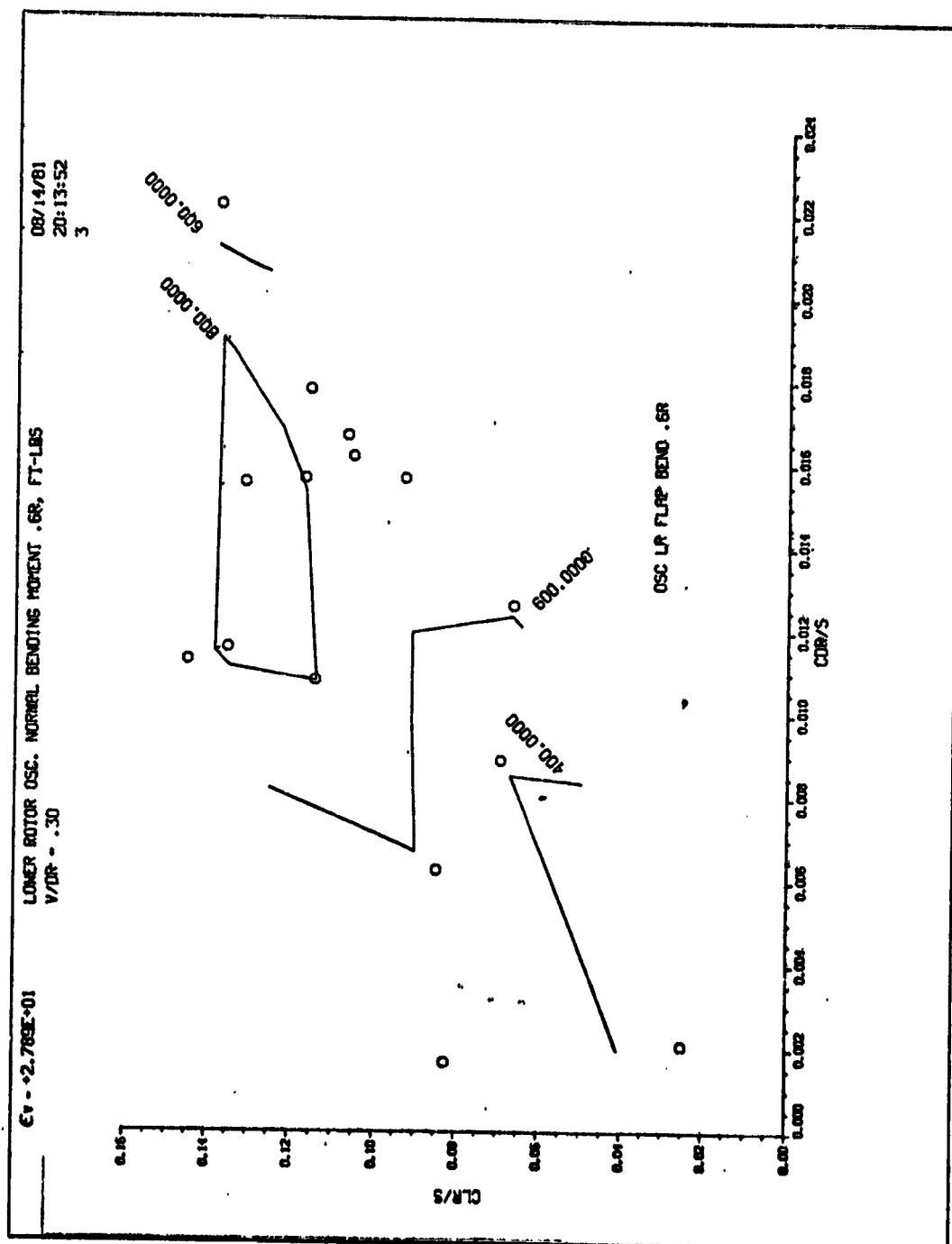
LOWER ROTOR MEAN NORMAL BENDING MOMENT .GR, FT-LBS
V/08 = .40

$E_v = 1.081E+00$



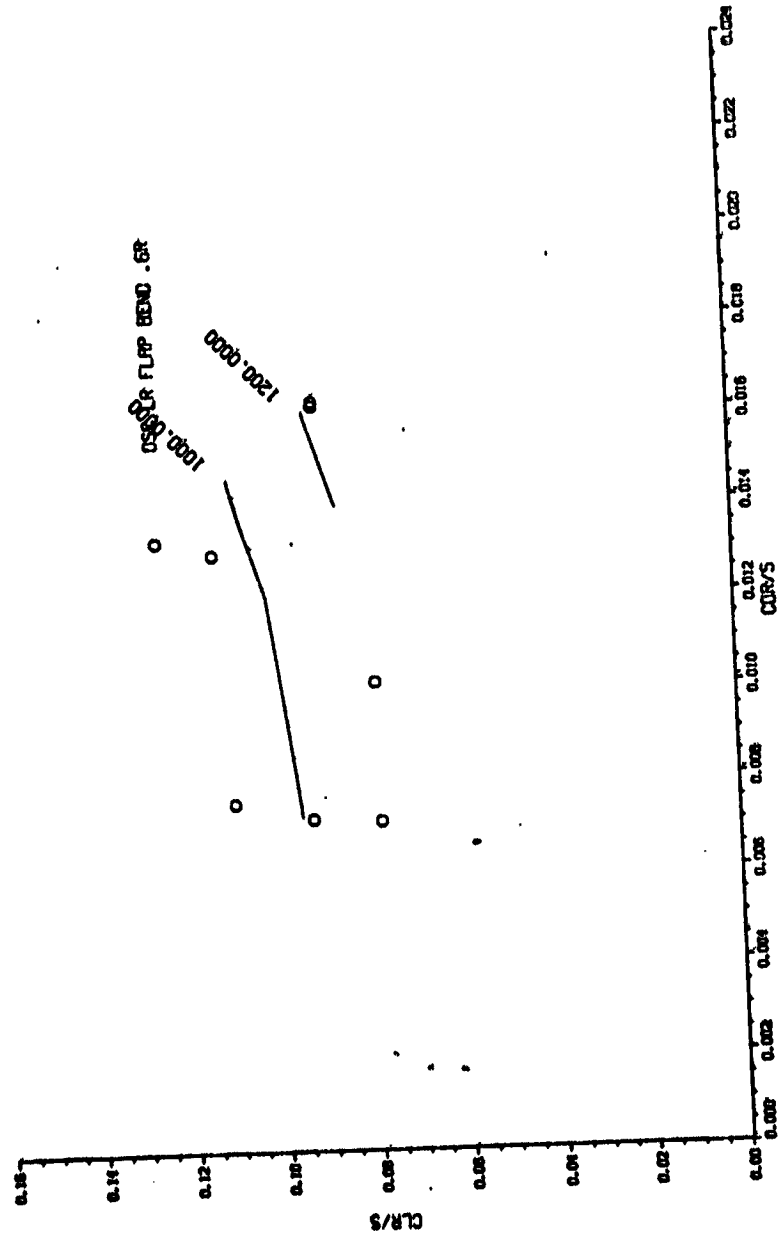


343 E



08/14/81
19:55:26
1

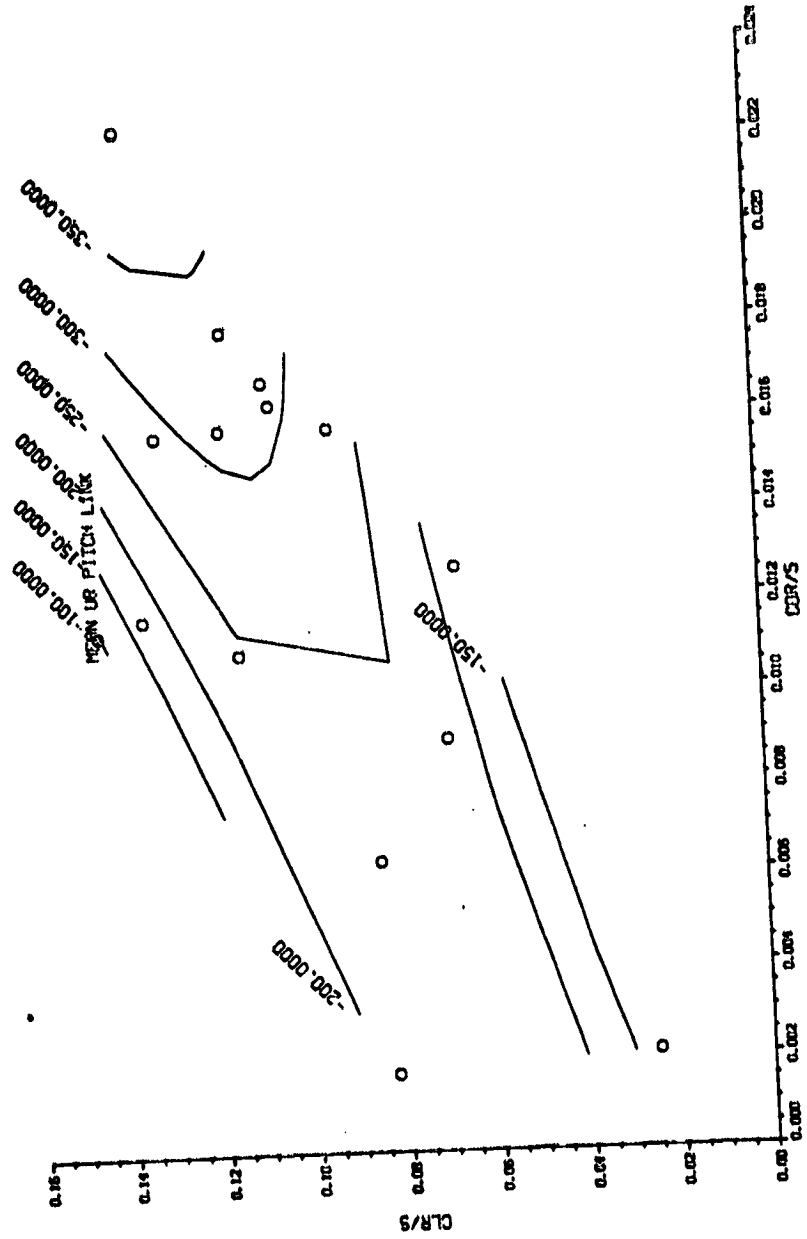
LOWER ROTOR OSC. NORMAL BENDING MOMENT .68, FT-LBS
V/08 = .40



08/10/81
17:44:45
2

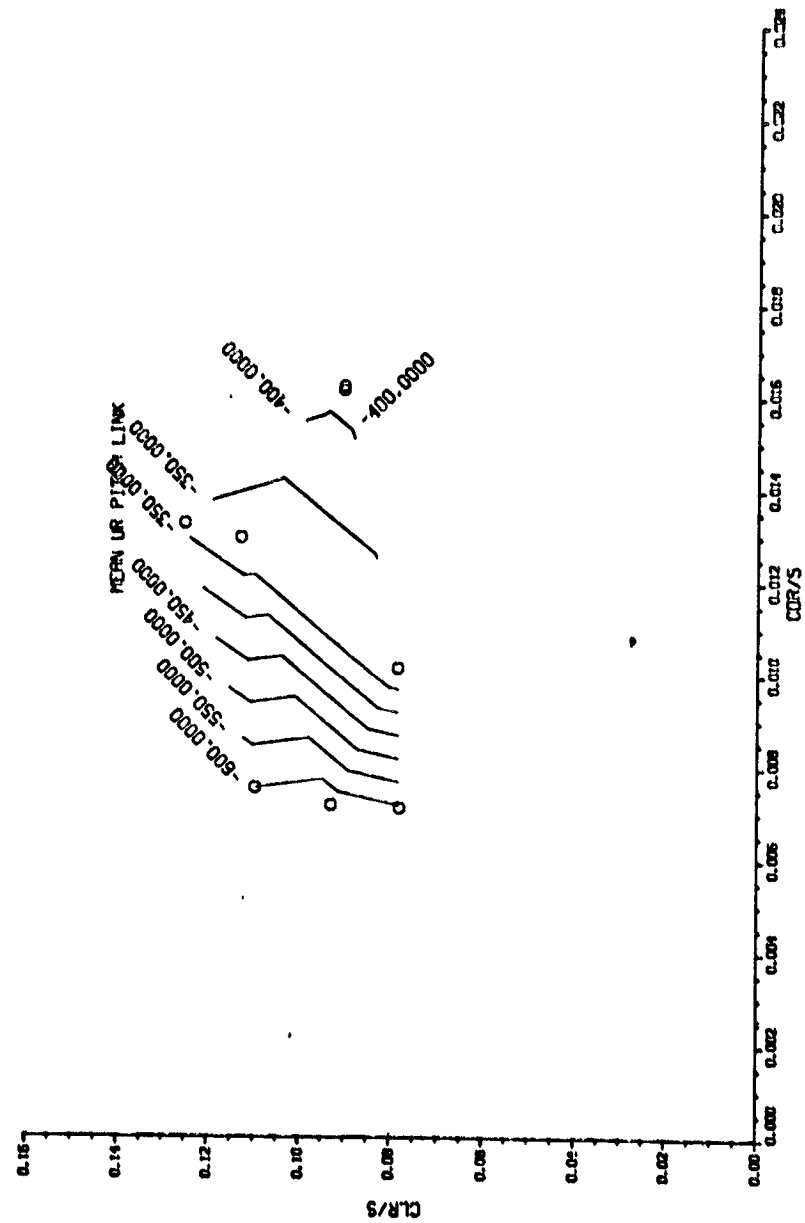
UPPER ROTOR MEAN PITCH LINK LORD, LBS
V/UR = .30

CV = 4.351E-01



08/10/81
17:48:19
1

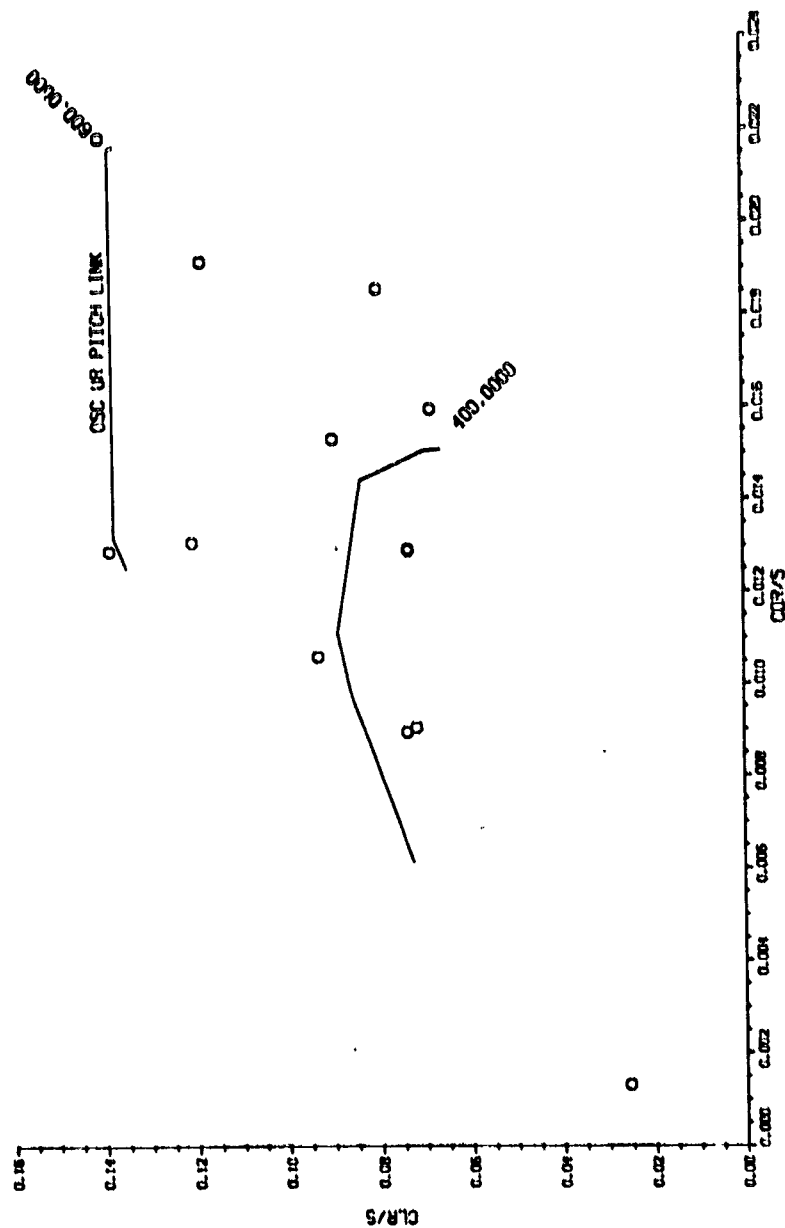
UPPER ROTOR MEAN PITCH LINK LOAD, LBS
V/DK - .40

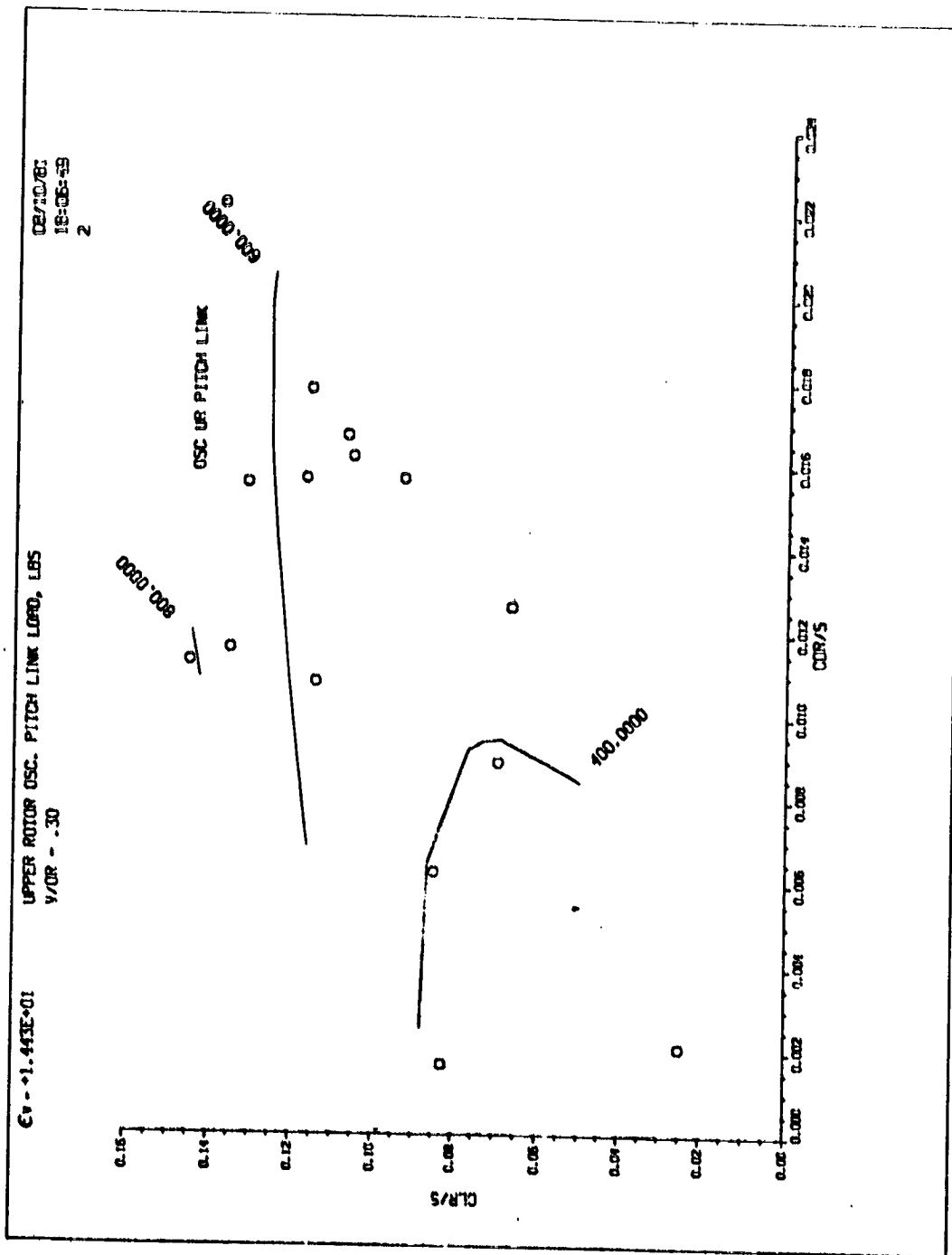


08/10/81
18:03:42
2

UPPER ROTOR OSC. PITCH LINK LOAD, LBS
V/UR - .25

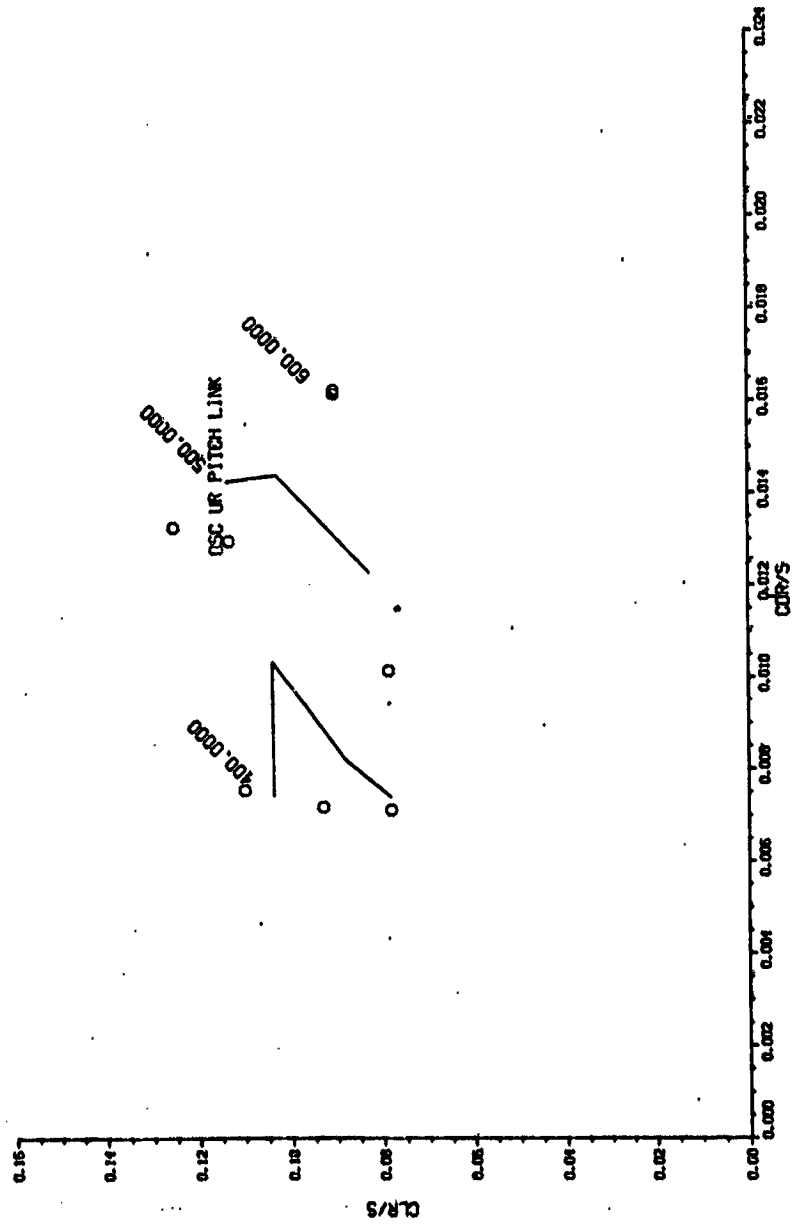
CV - 3.807E+00

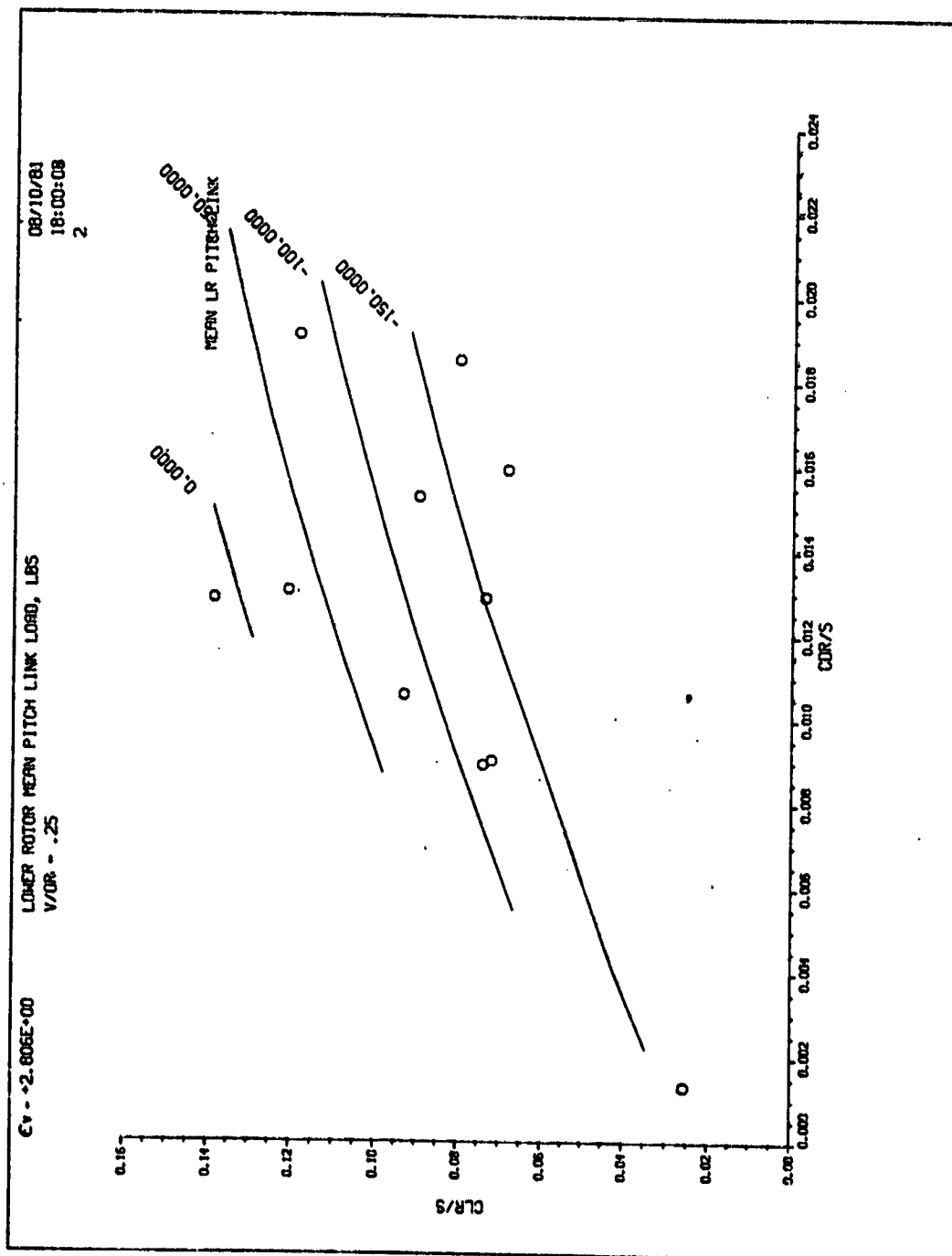




08/14/81
19:49:35
3

UPPER ROTOR OSC. PITCH LINE LOAD, LBS
V/DK = .40

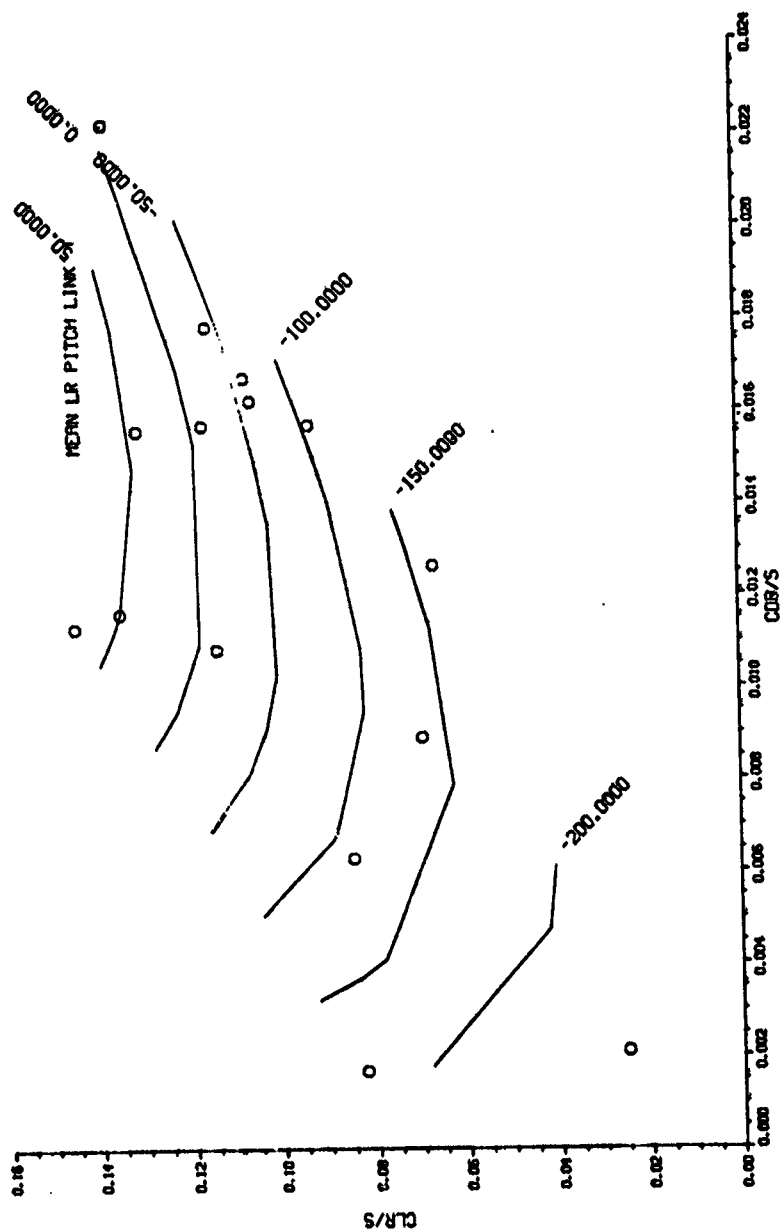


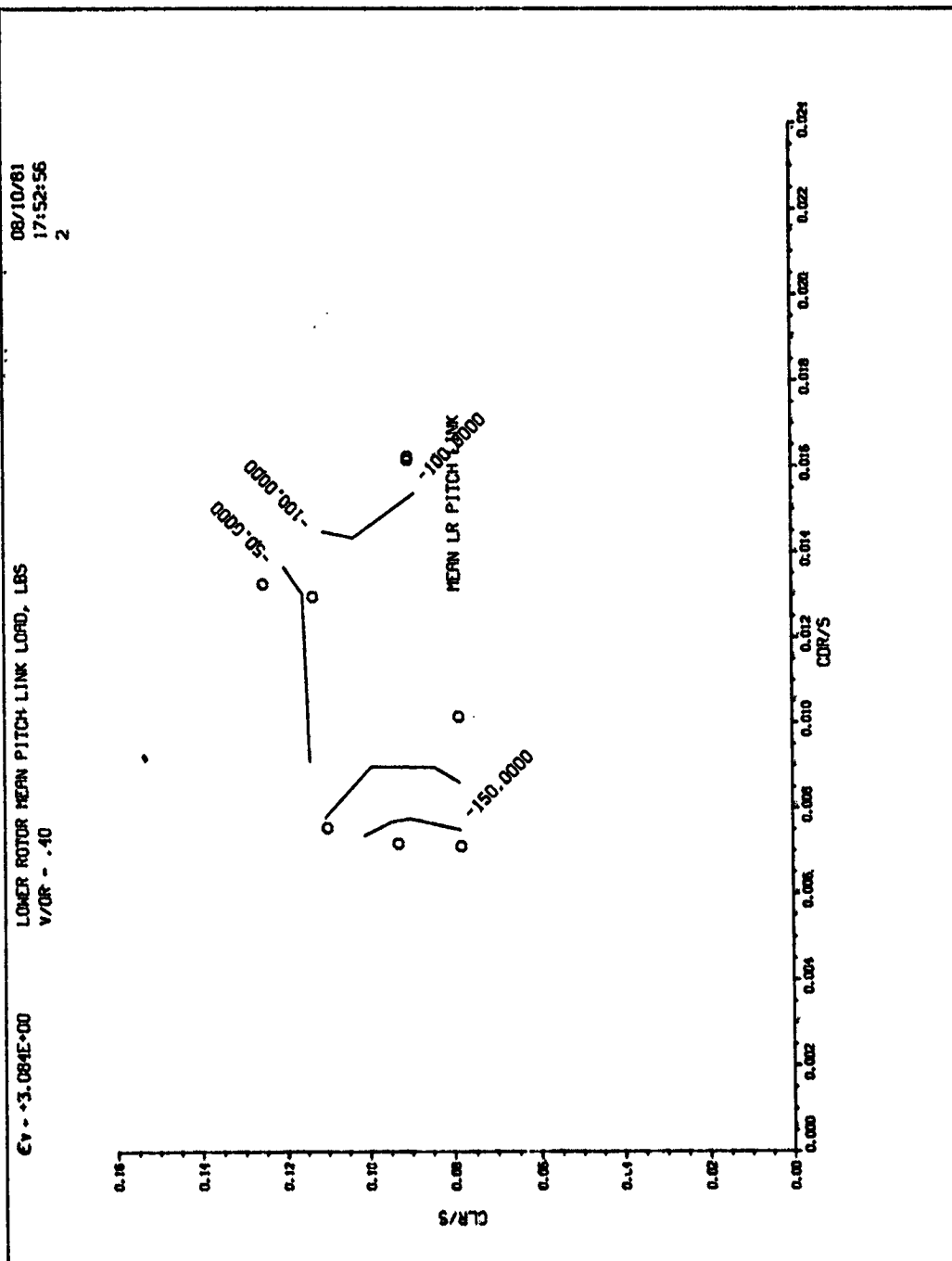


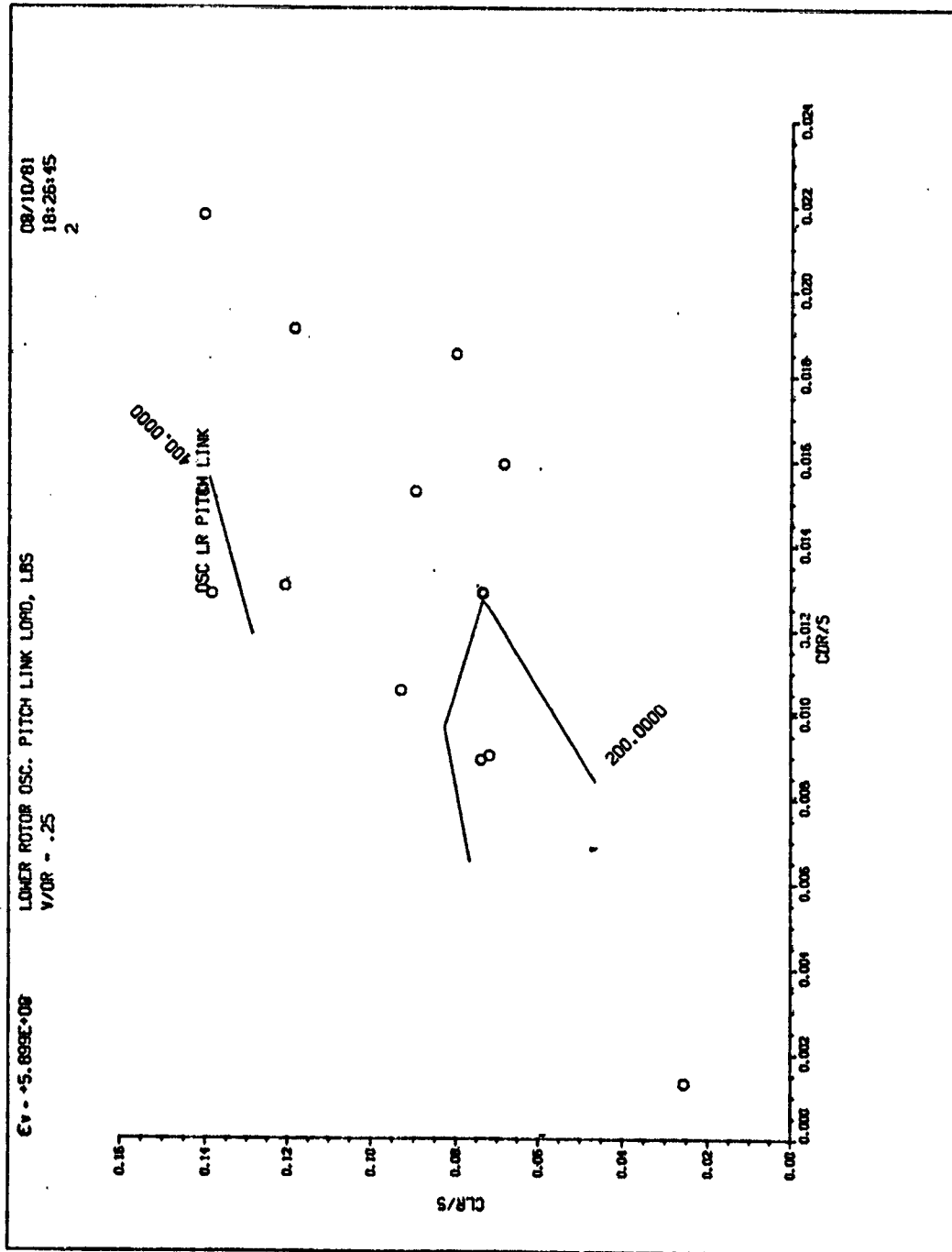
08/10/81
17:56:40
2

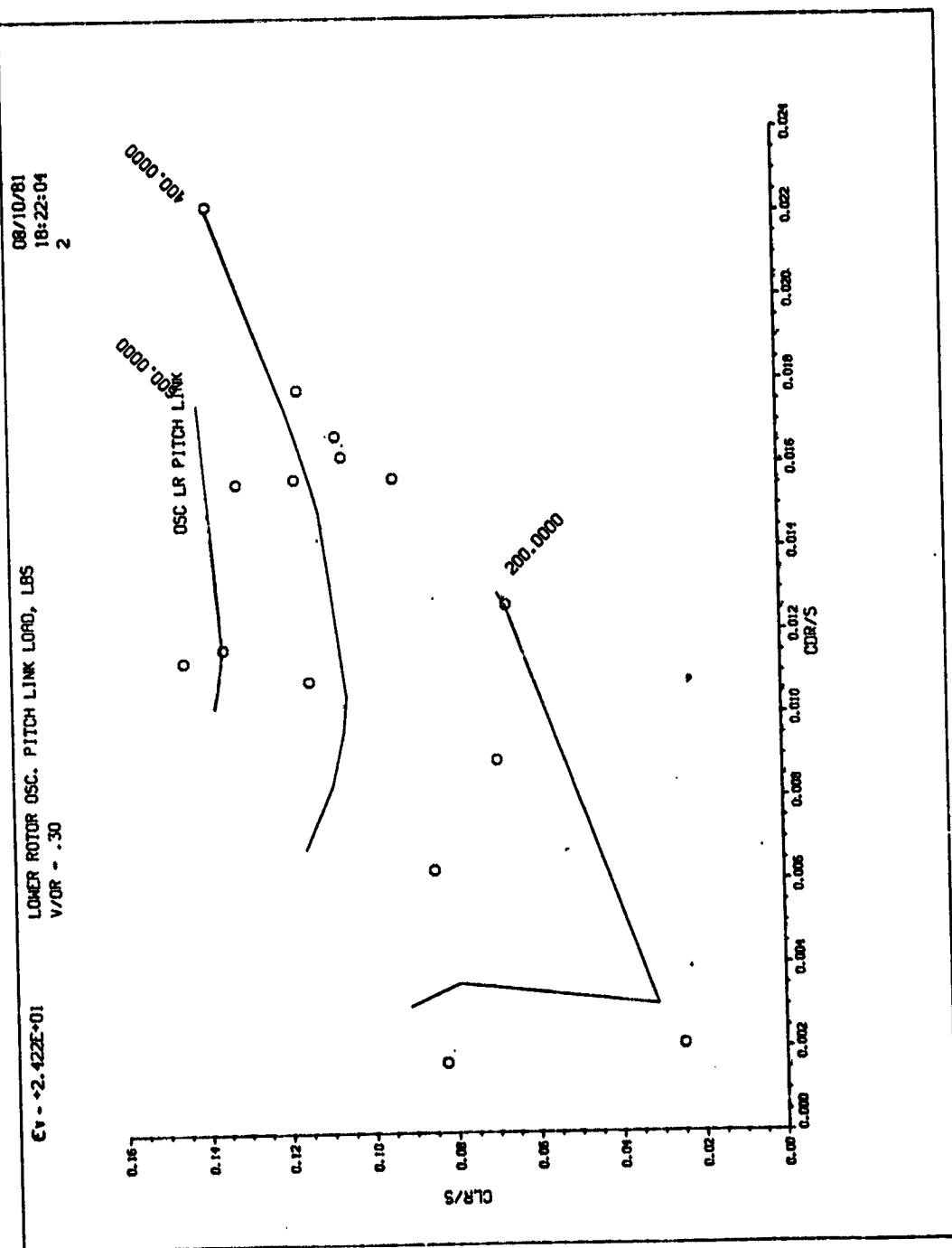
LOWER ROTOR MEAN PITCH LINK LOAD, LBS
V/OR = .30

Cv = +1.283E+01



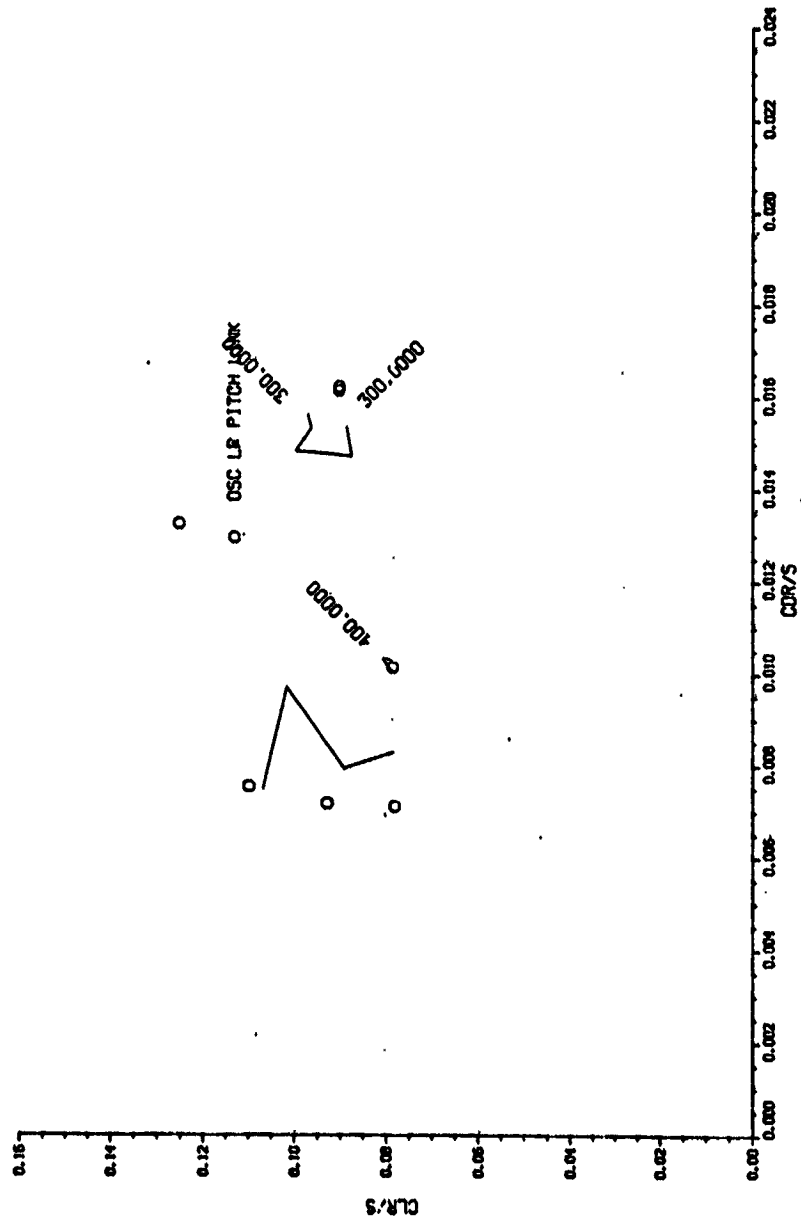


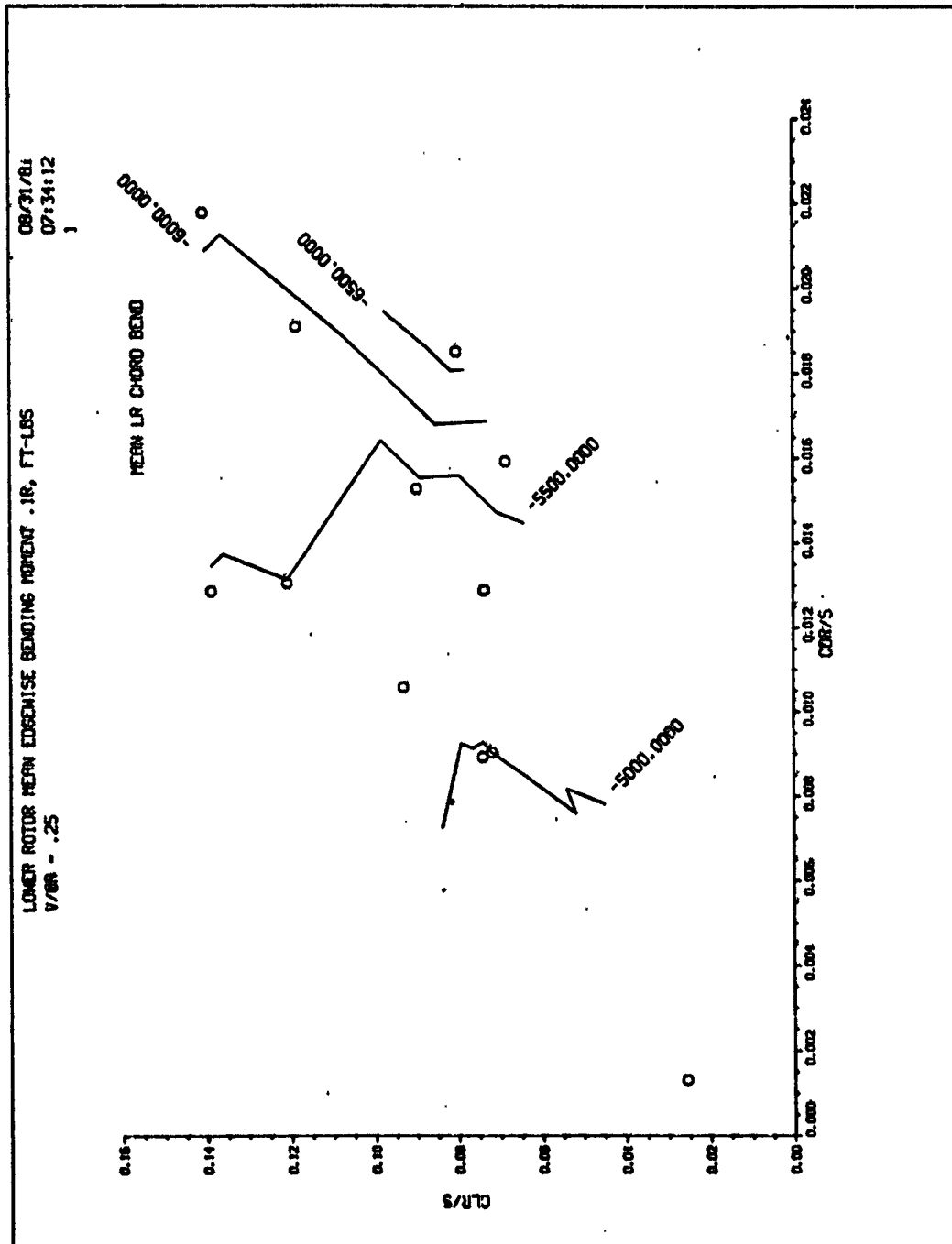




08/14/81
19:37:56
1

LOWER ROTOR OSC. PITCH LINK LOAD, LBS
V/08 - .40

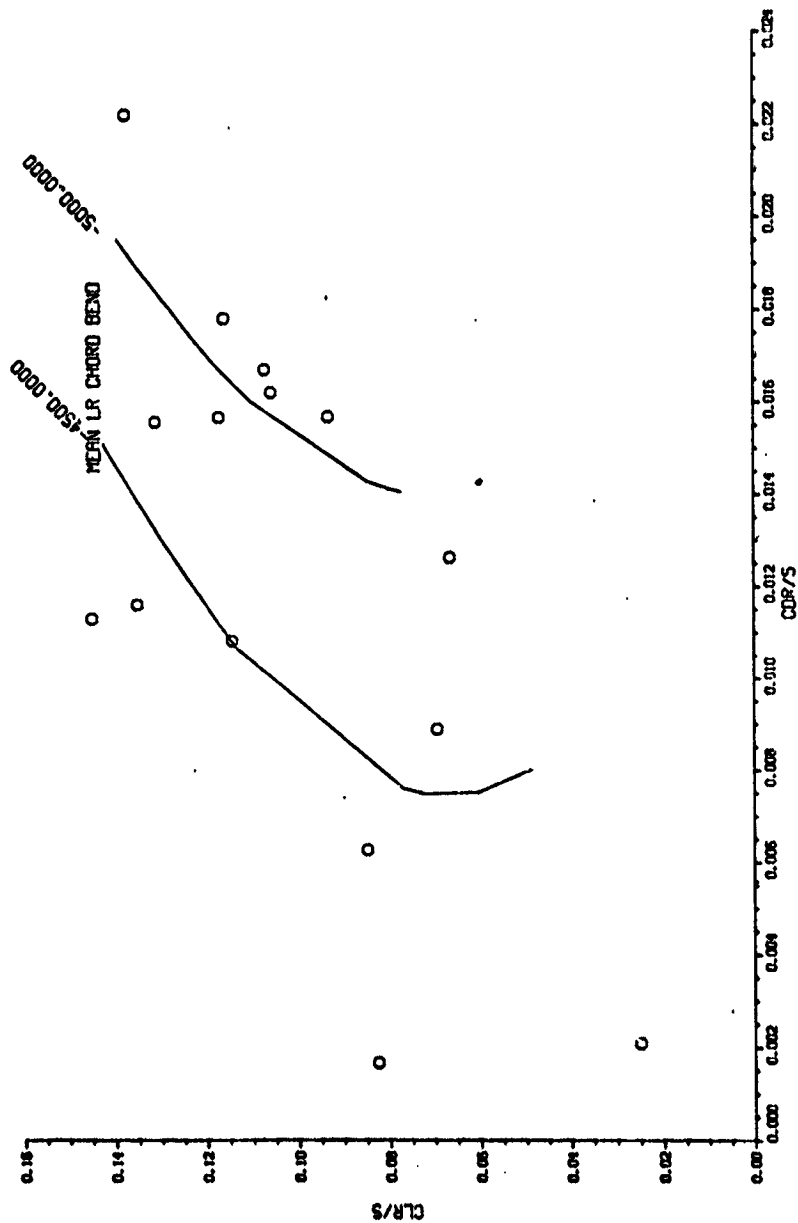




09/01/81
01:28:07
2

LOWER ROTOR MEAN EIRCHISE BENDING MOMENT .1R, FT-LBS
V/OR - .30

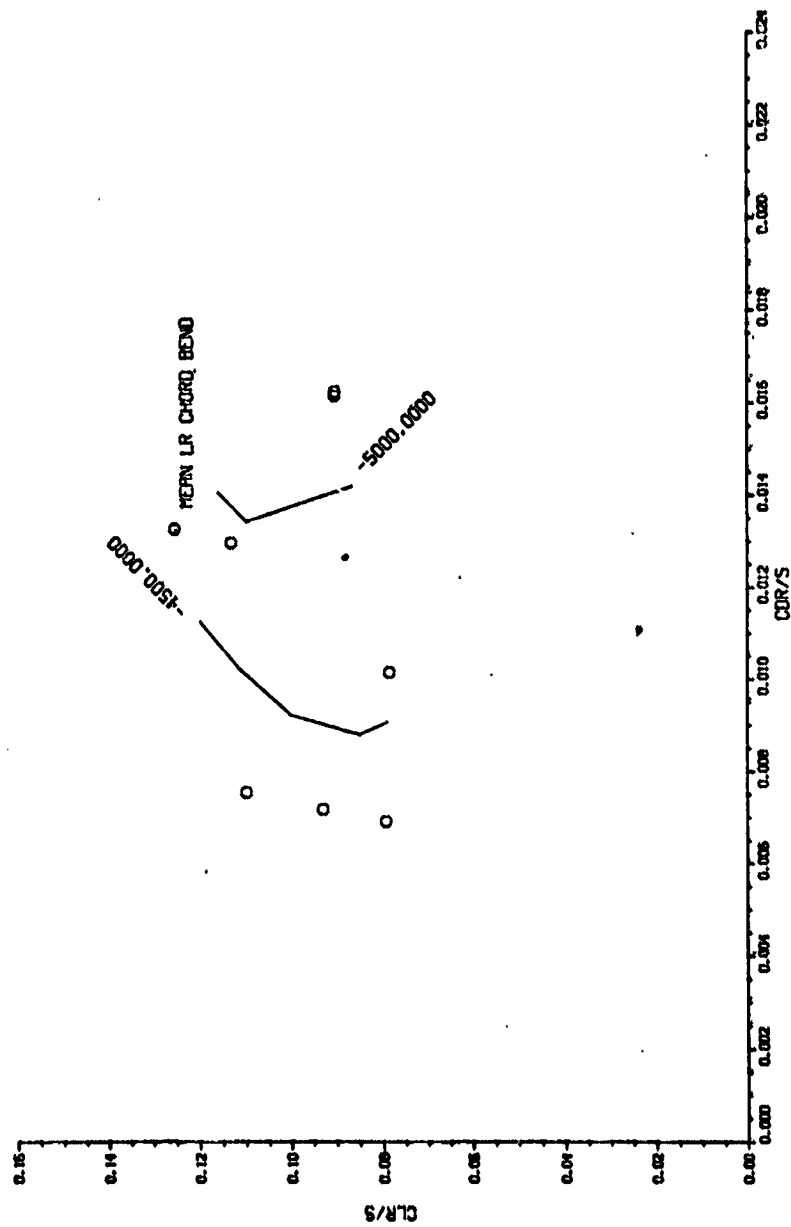
E_v - +8.203E+01

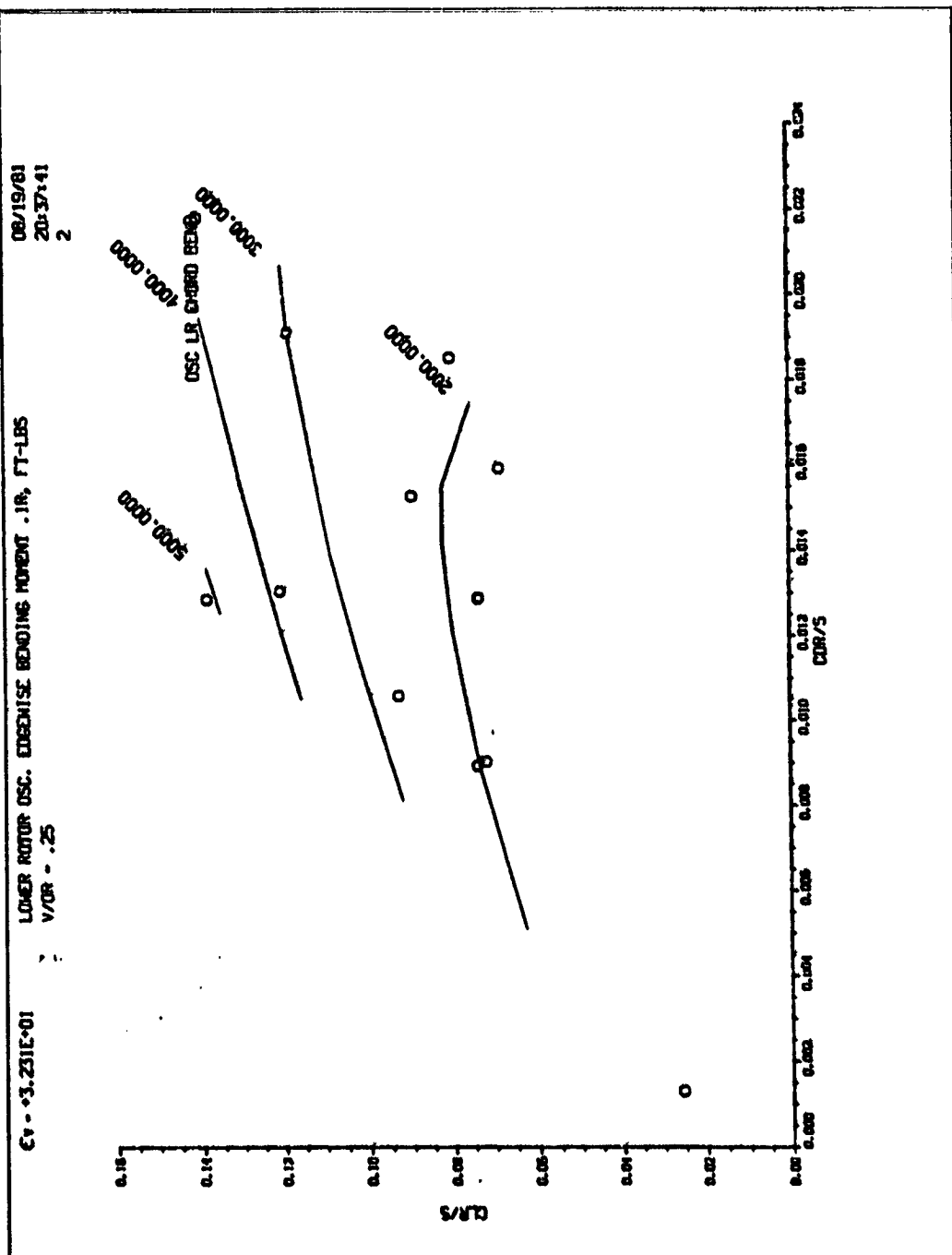


08/31/81
20:39:53
2

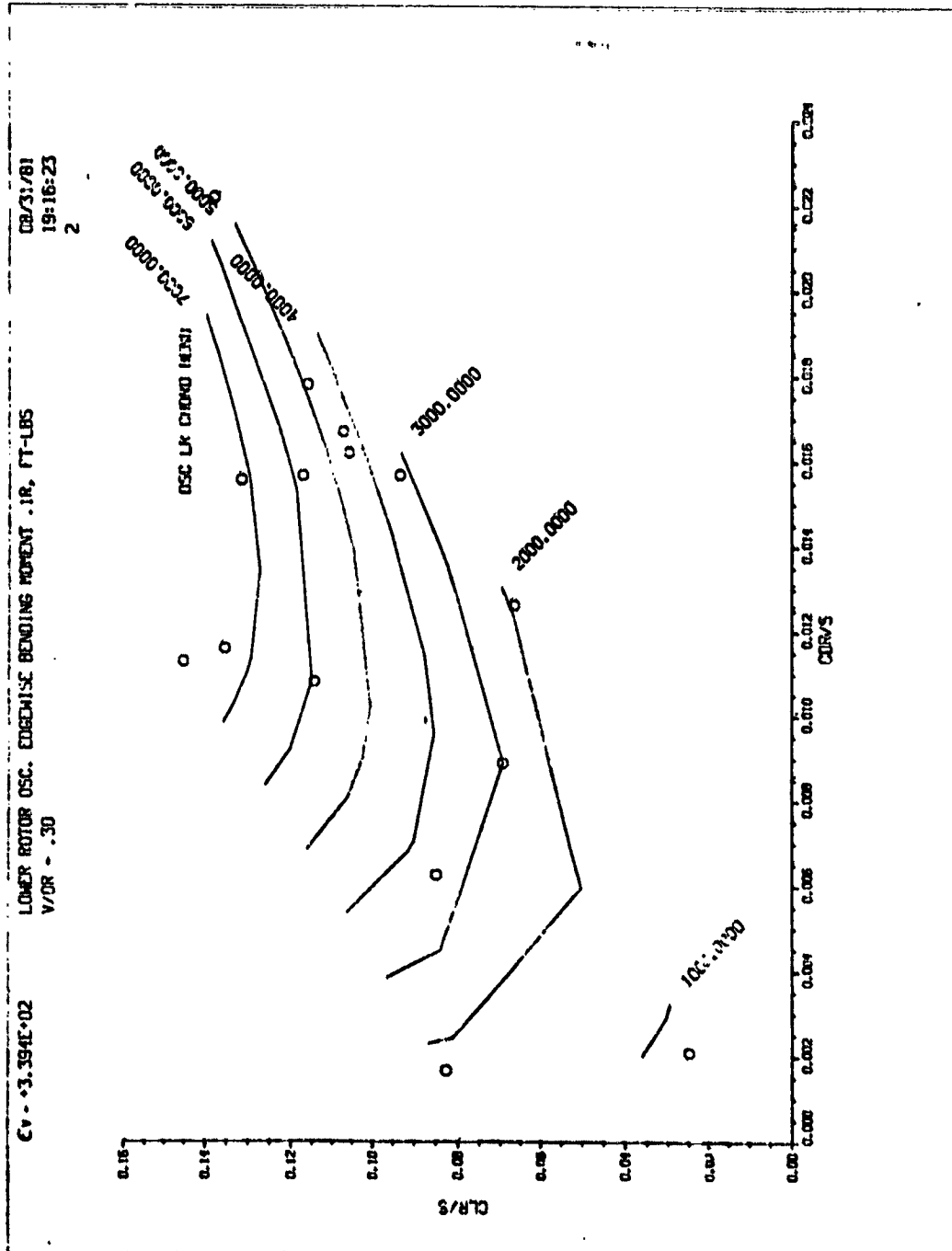
LOWER ROTOR MEAN EDGEWISE BENDING MOMENT .LR, FT-LBS
V/QR = .40

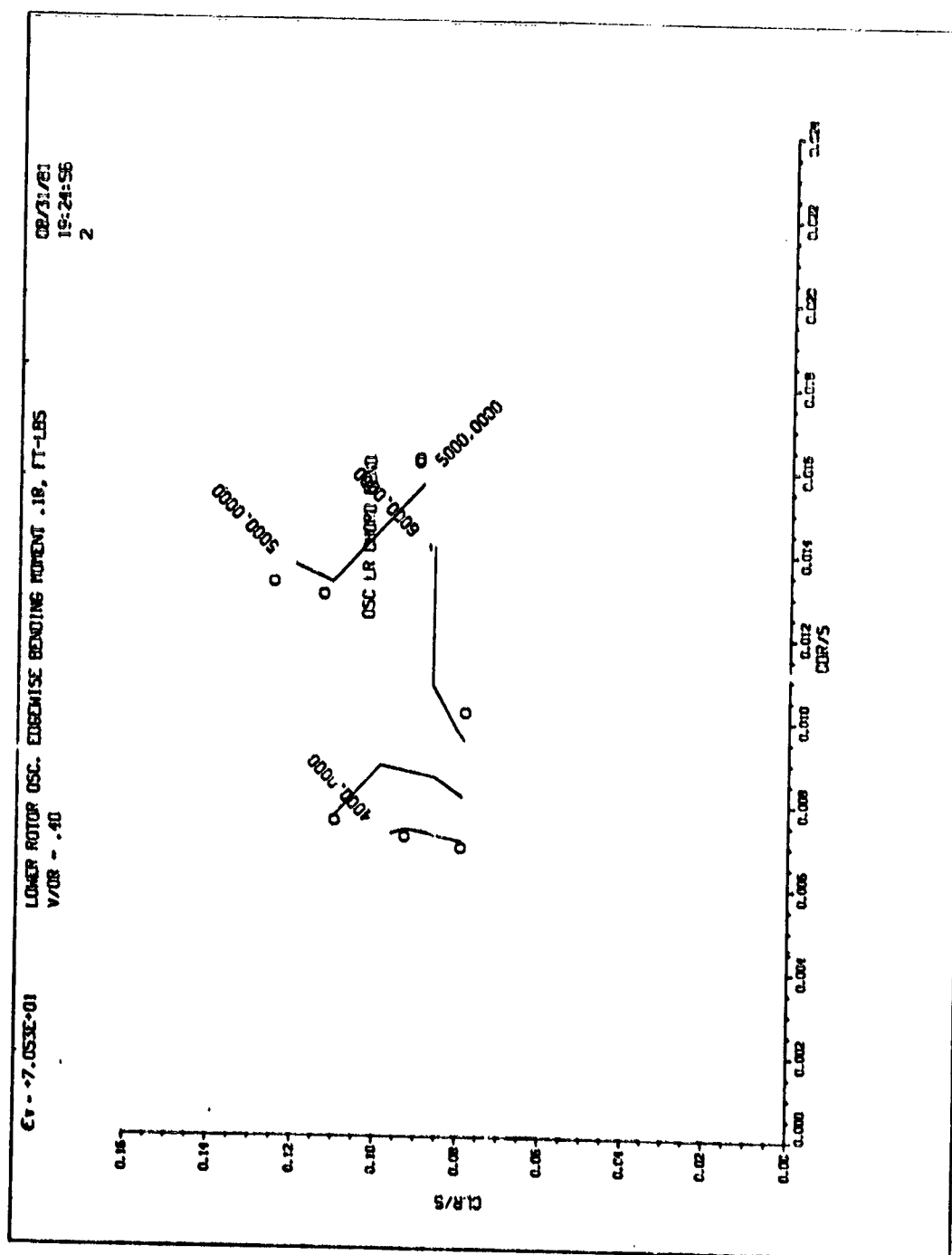
E_r = -1.947E-01

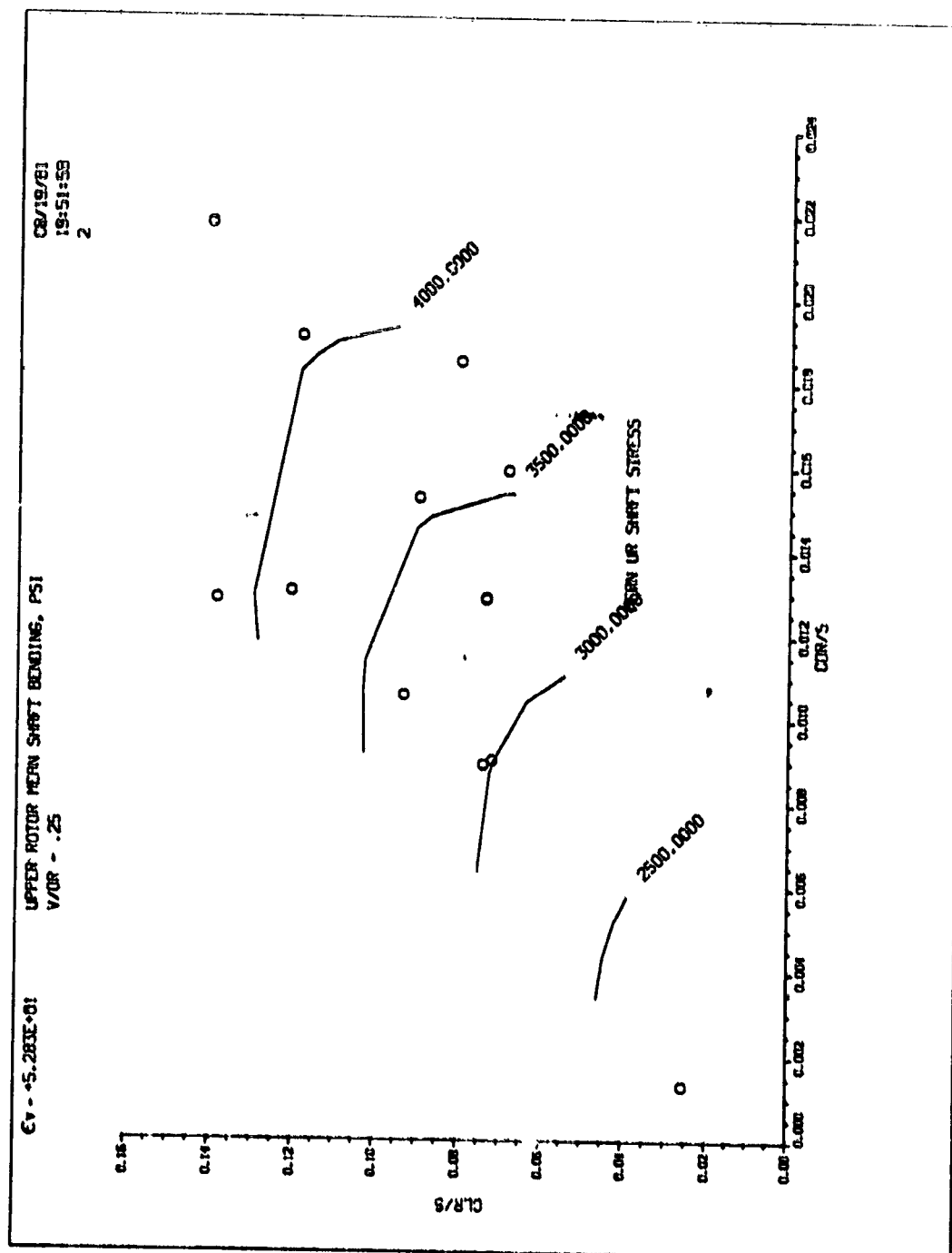




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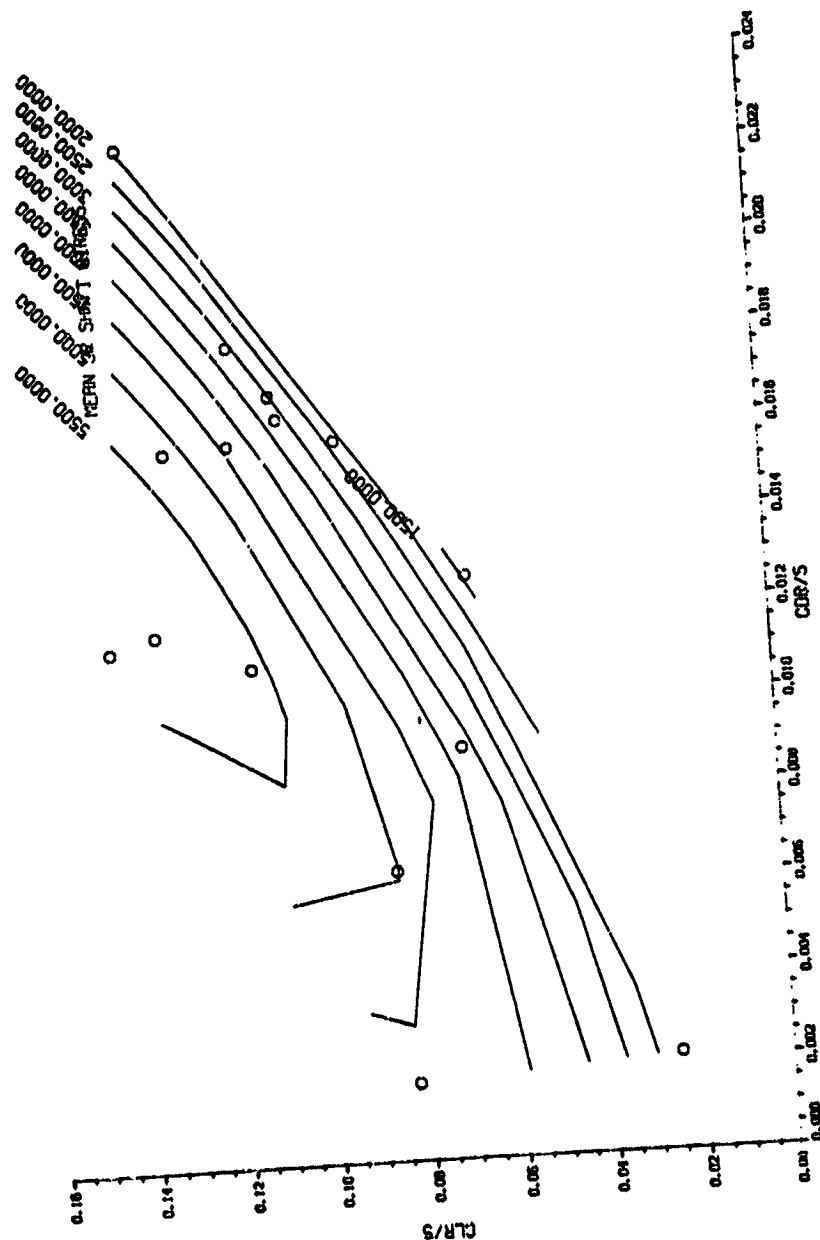


08/31/81
20:01:25
2

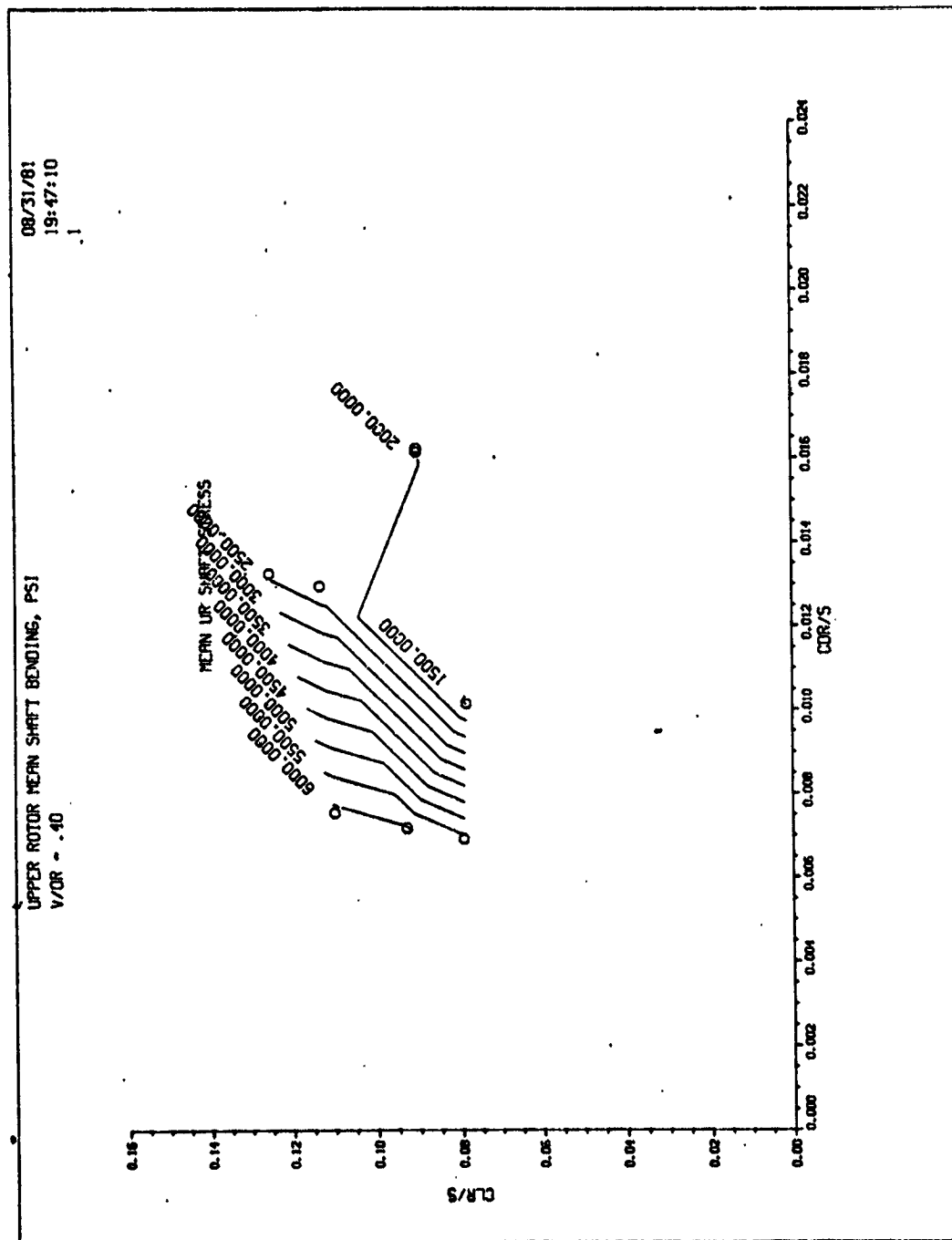
UPPER ROTOR MEAN SHAFT BENDING, PSI

V/OP - .30

$\epsilon_v = 2.810E-02$



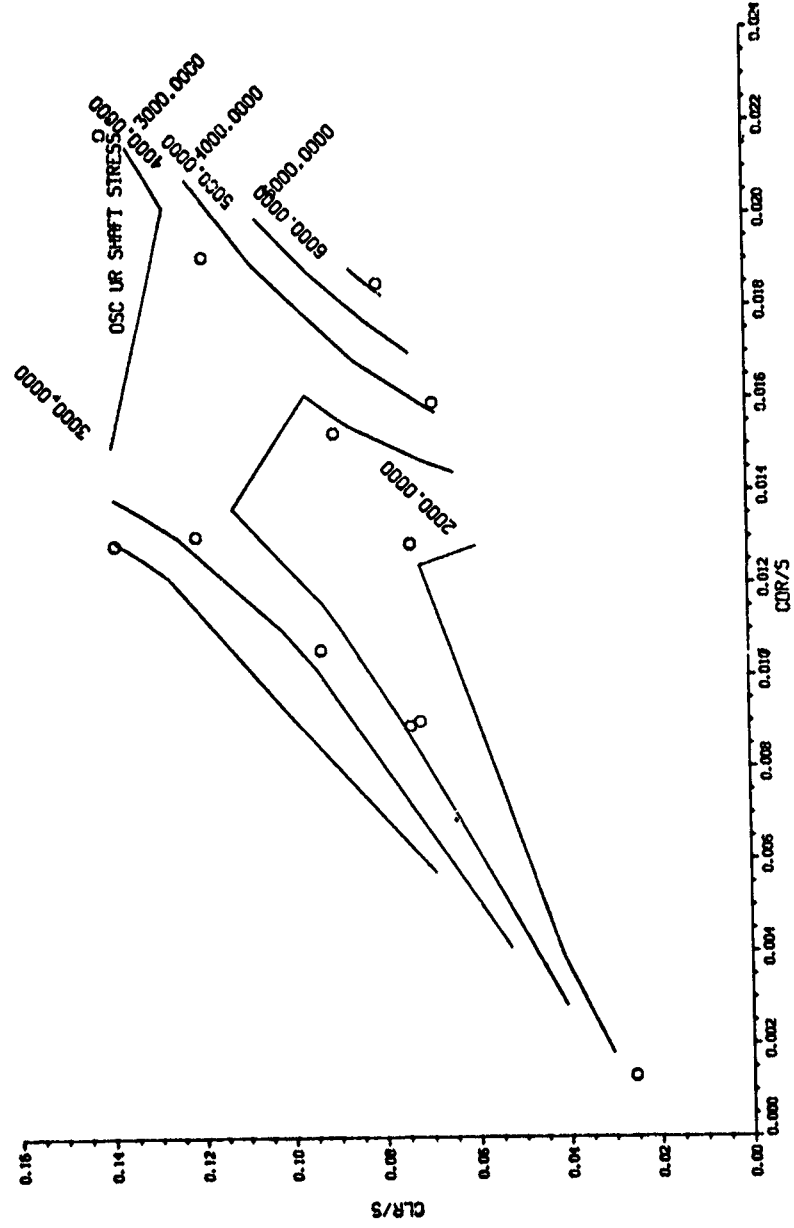
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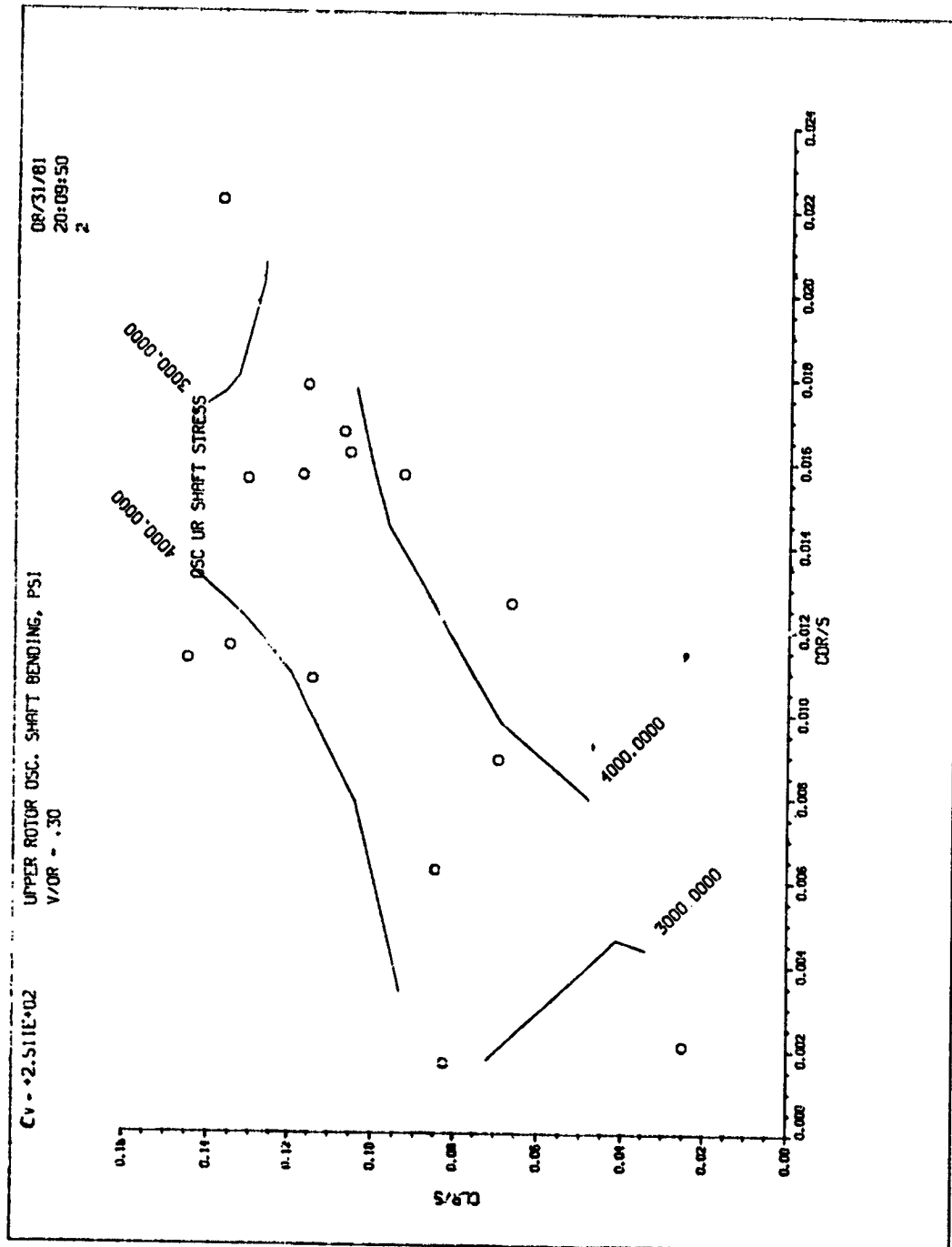
08/19/81
19:05:38
2

UPPER ROTOR OSC. SHAFT BENDING, PSI
V/DR = .25

$C_v = 1.64E-02$

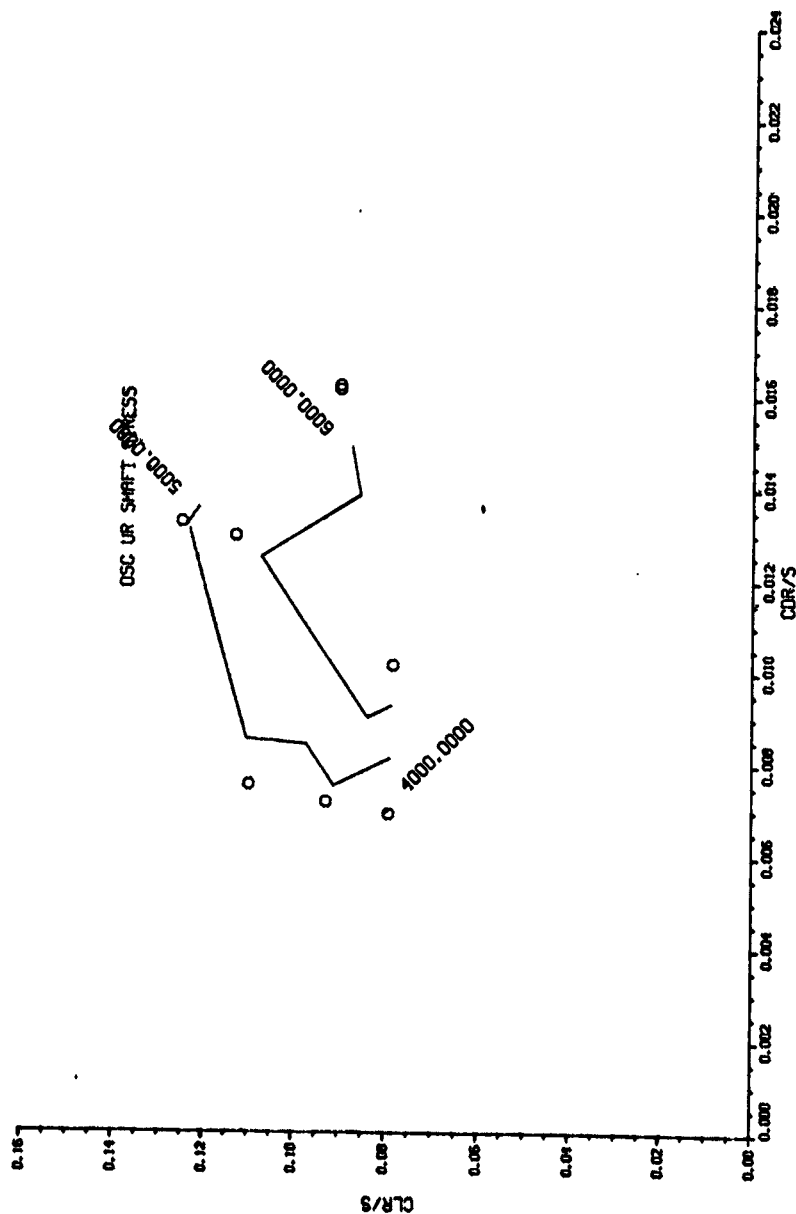


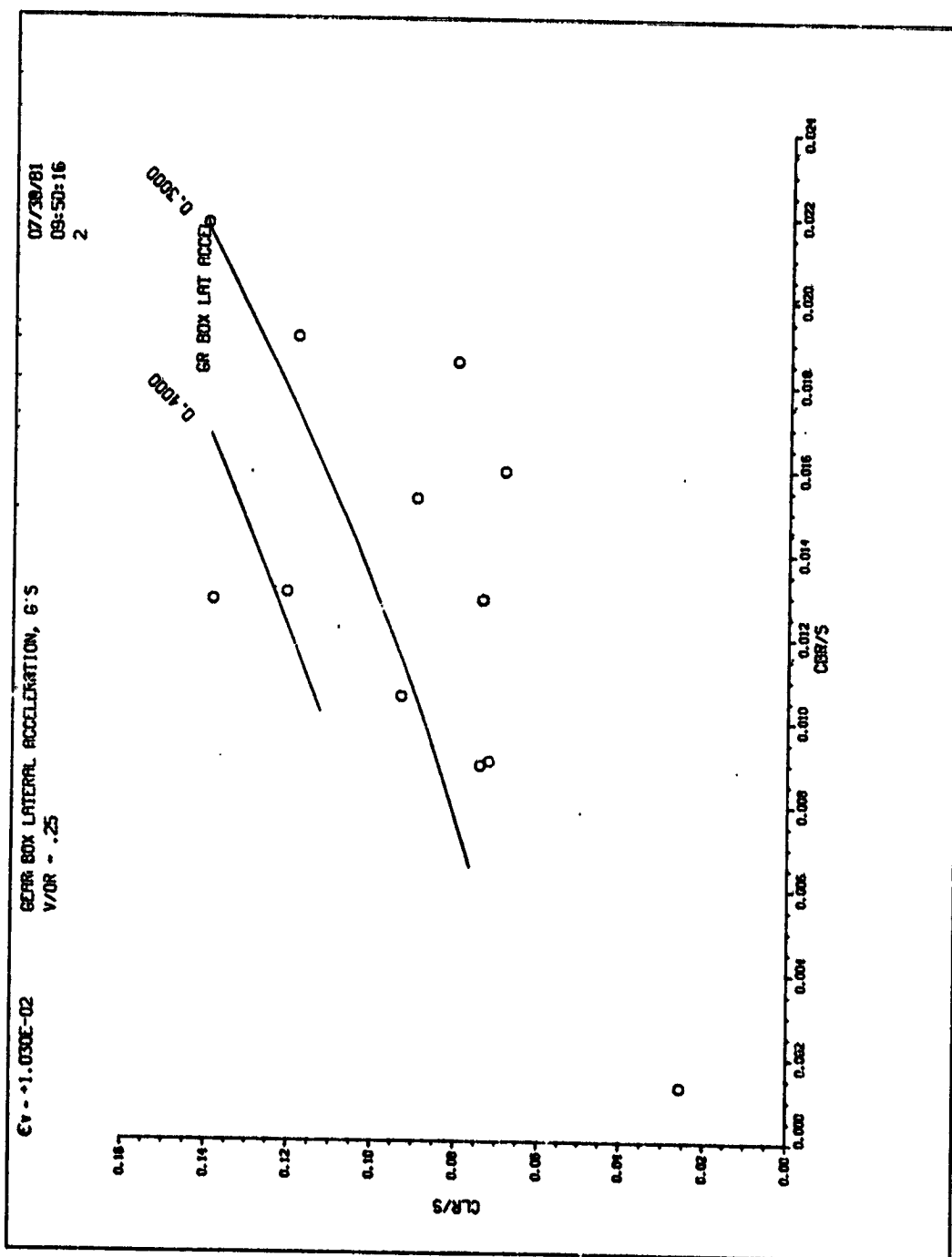
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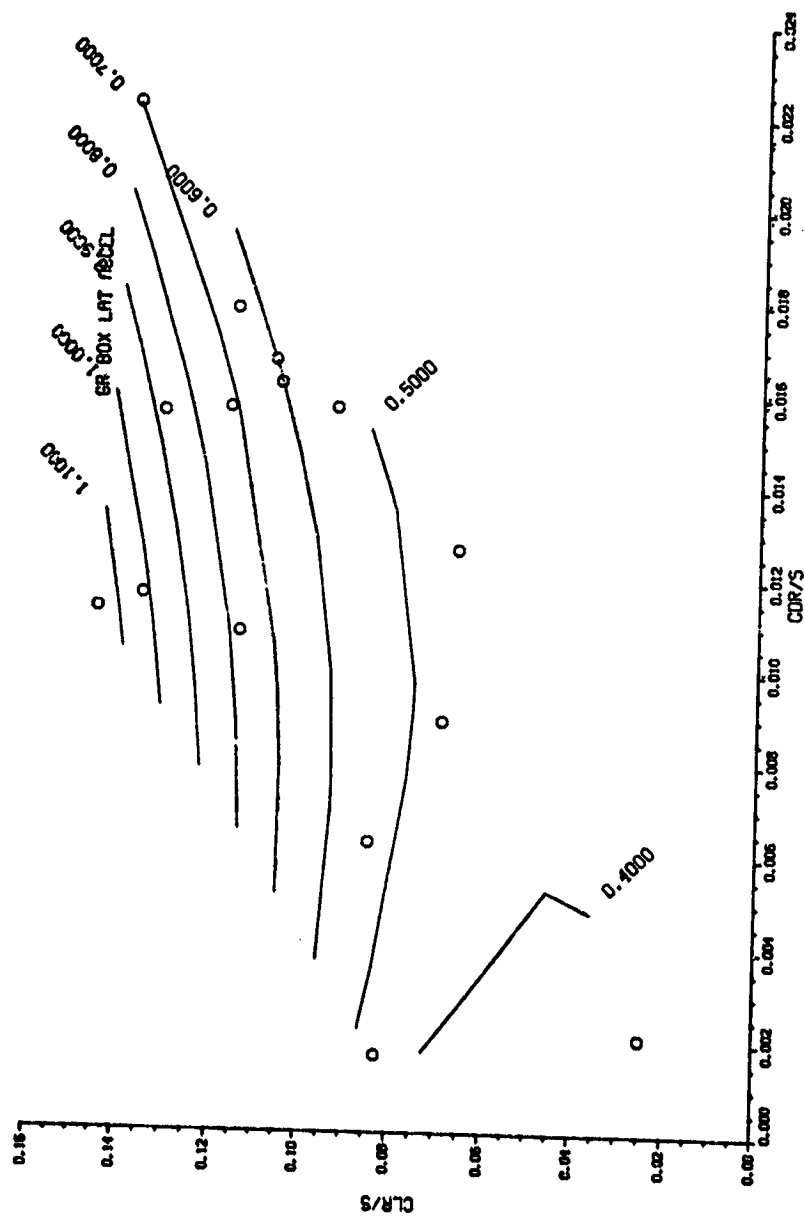
08/31/81
20:15:29
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UPPER ROTOR OSC. SHAFT BENDING, PSI
V/OR = .40



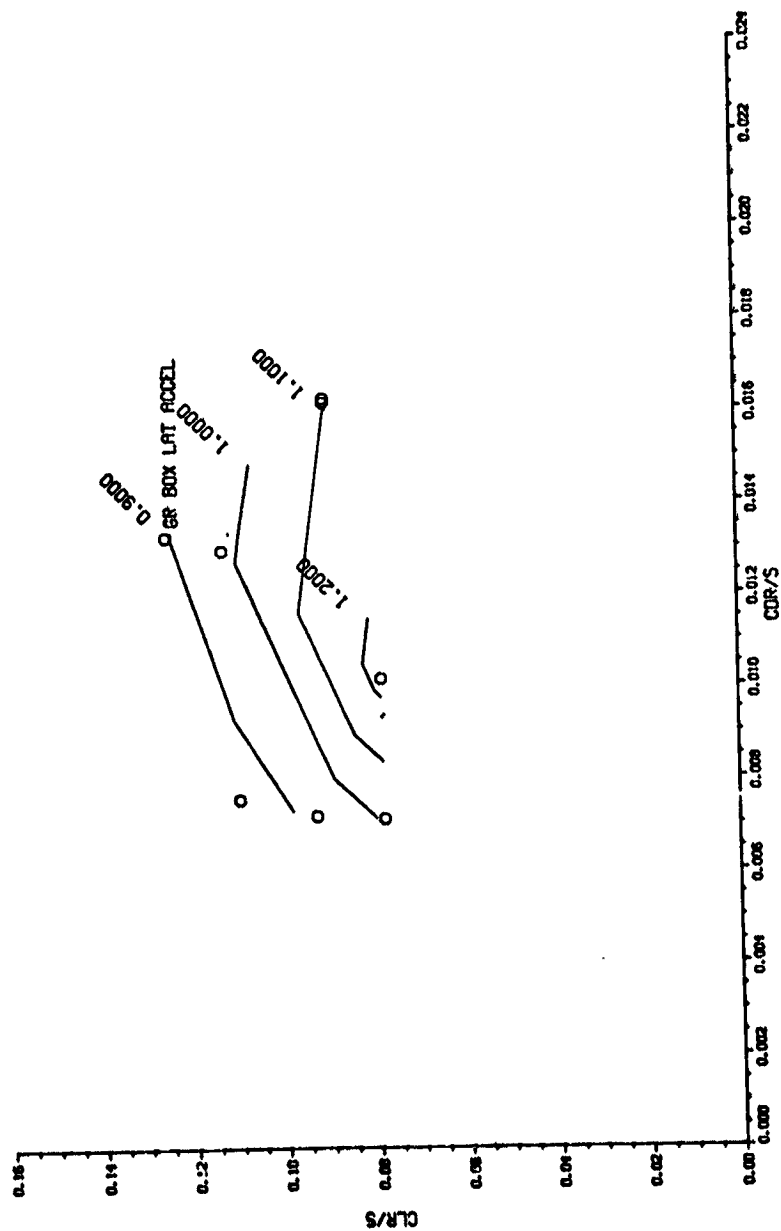


08/01/81
13:44:43
2



07/31/81
07:57:51
3

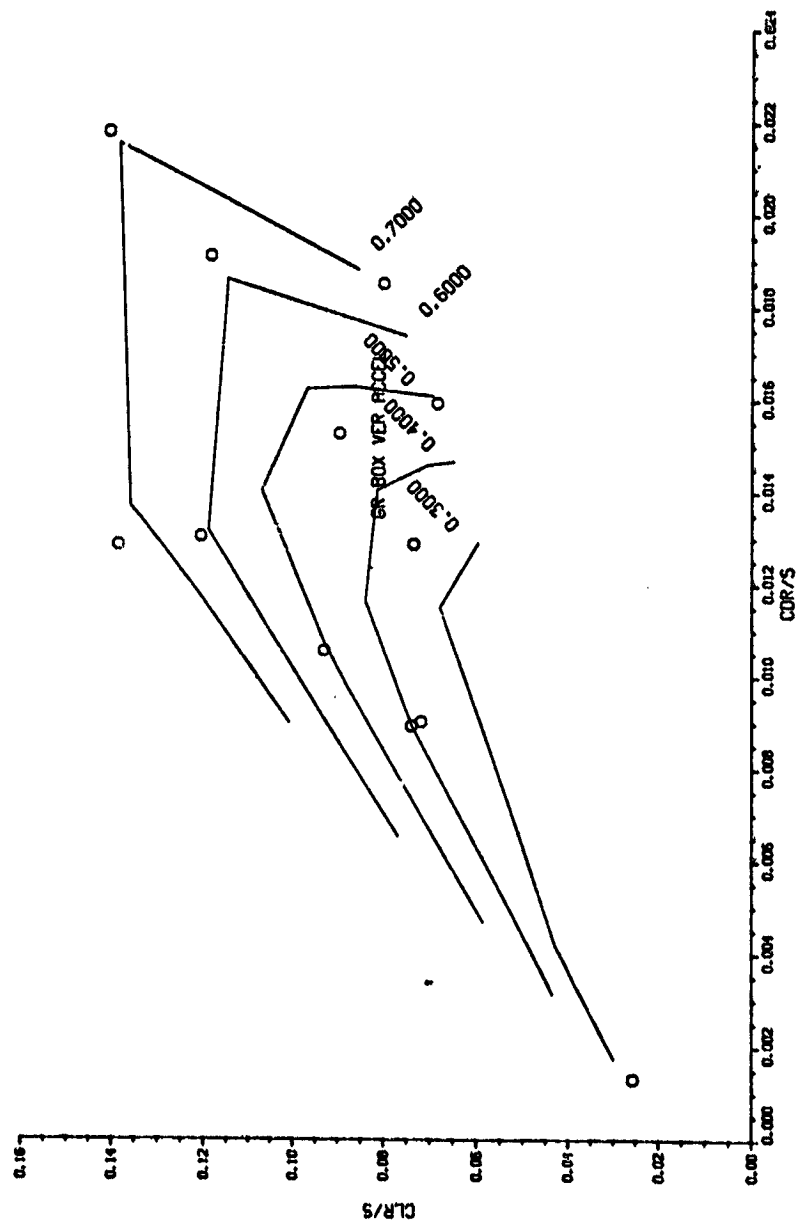
GEAR BOX LATERAL ACCELERATION, G'S
V/OR = .40



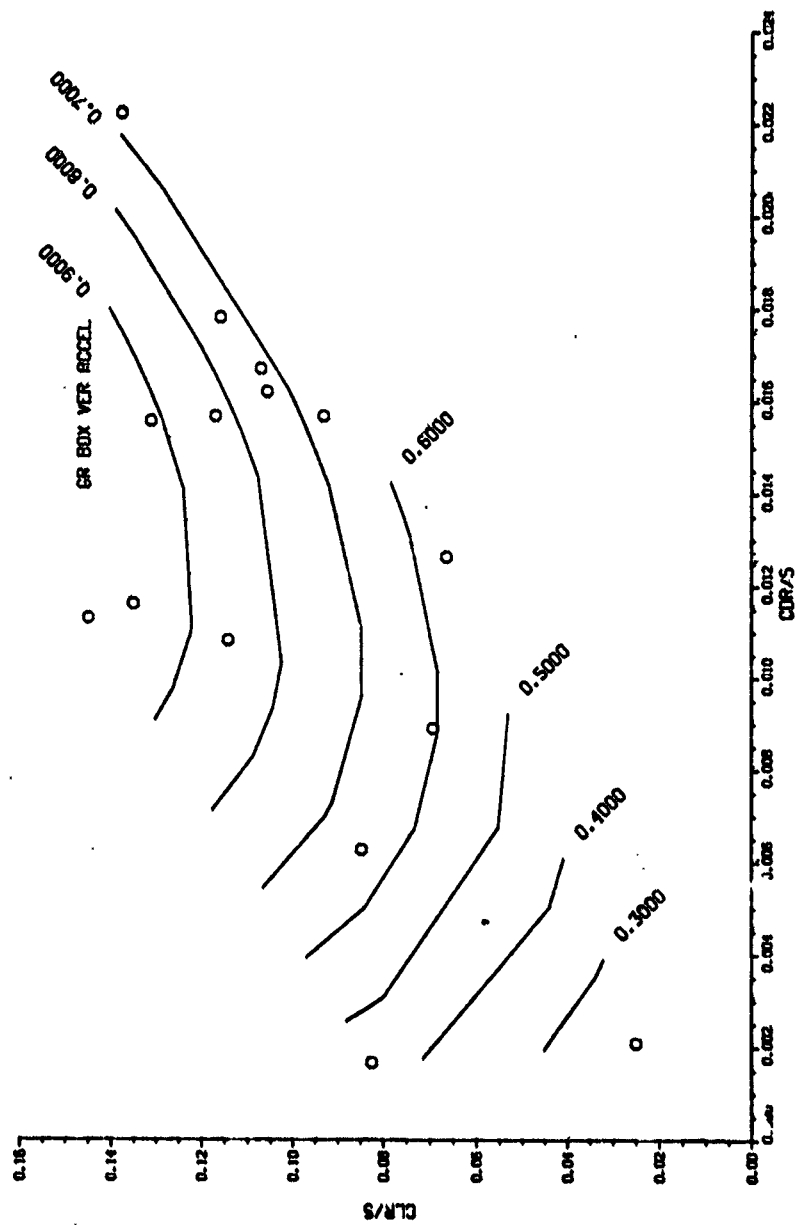
07/30/81
10:16:33
2

GEAR BOX VERTICAL ACCELERATION G'S
V/VR = .25

Cv -> 1.038E-02

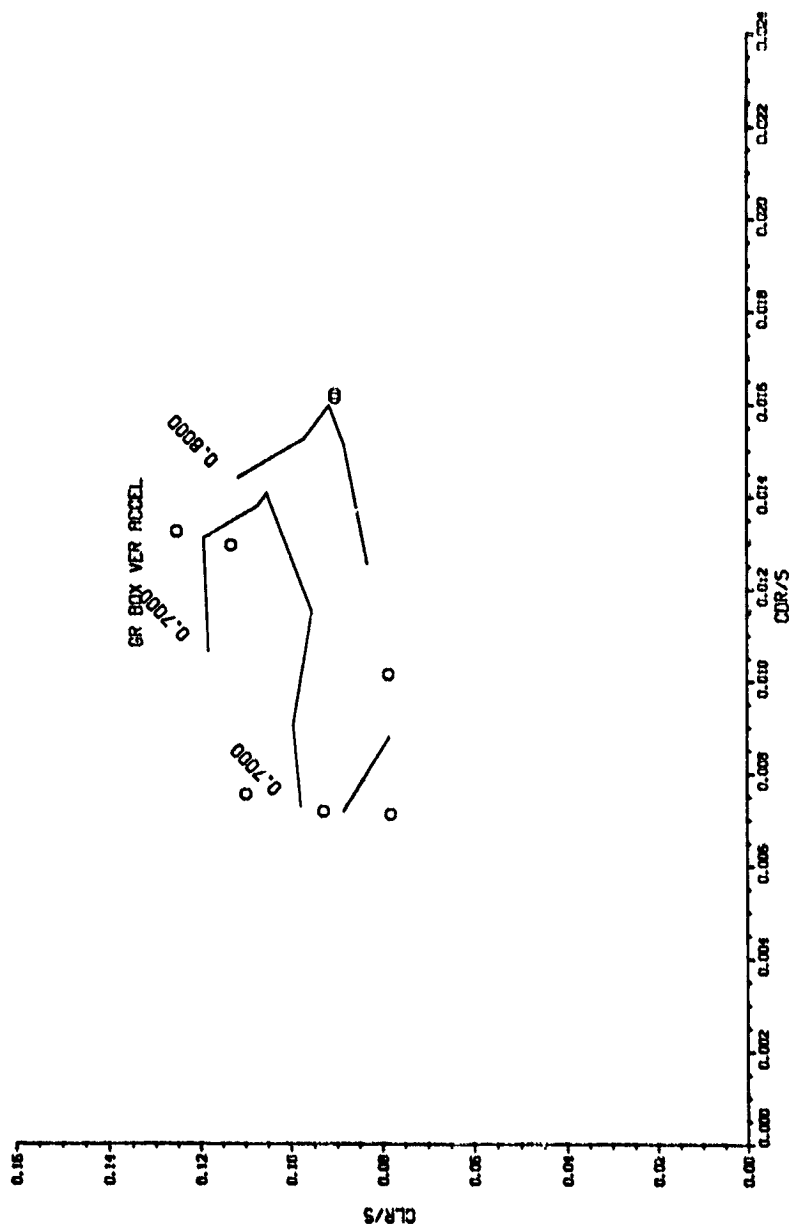


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09/01/81
14:11:31
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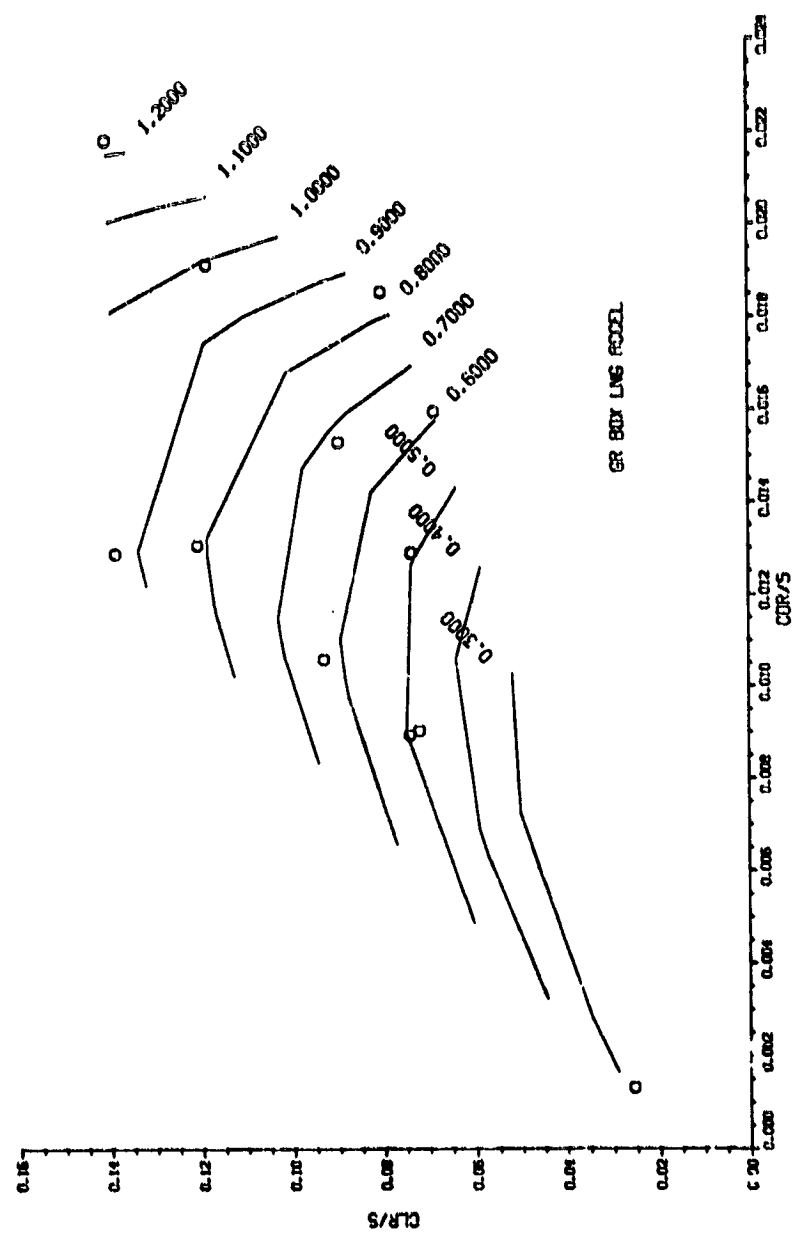
GEAR BOX VERTICAL ACCELERATION G'S
V/DOR = .40

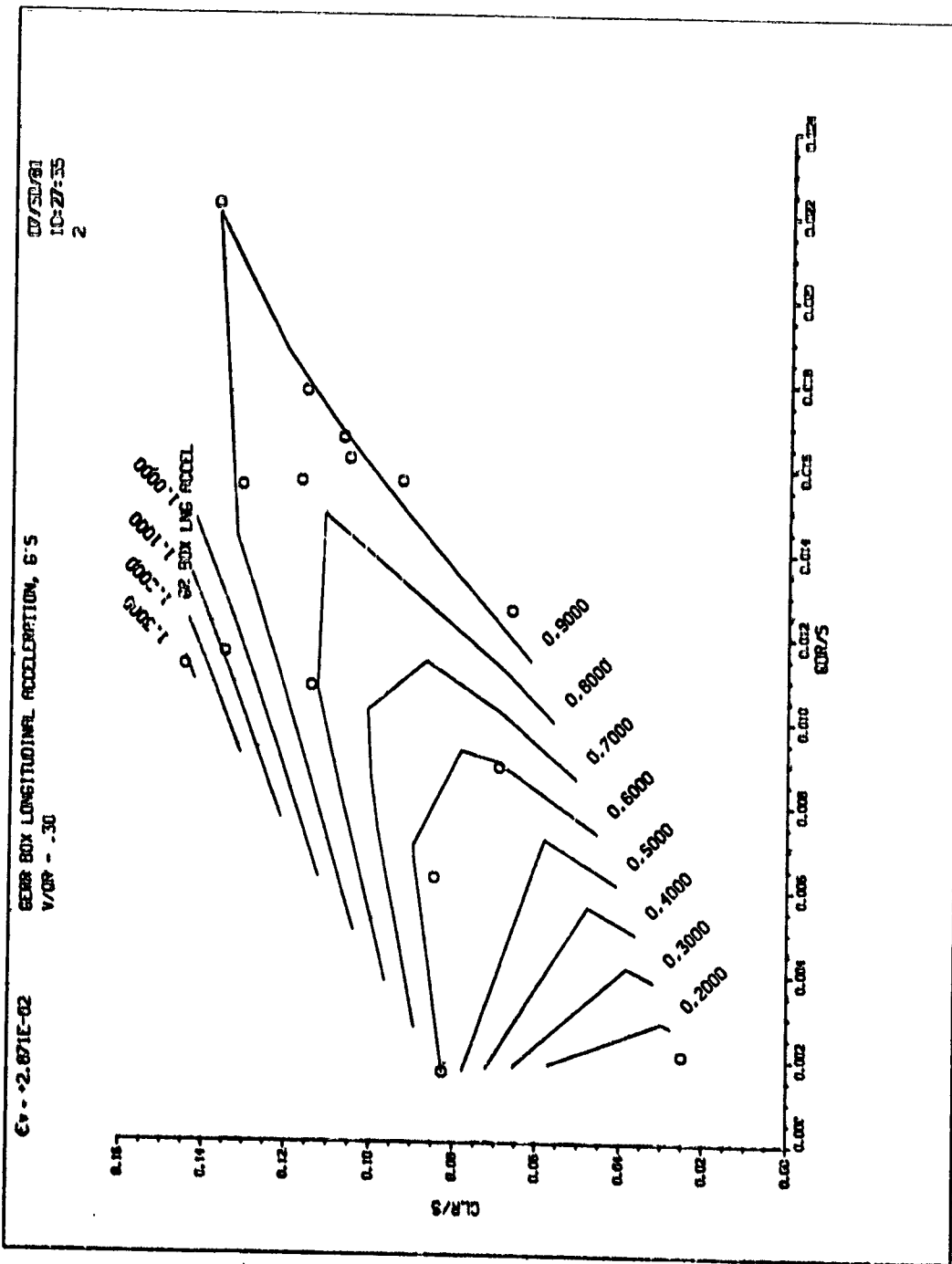


08/01/81
14:24:24
2

GEAR BOX LONGITUDINAL ACCELERATION, G'S
V/OR - .25

Ev - +2.658E-02





07/30/81
10:41:42
3

GEAR BOX LONGITUDINAL ACCELERATION, G'S
V/OB - .40

